I-405
CORRIDOR PROGRAM NEPA/SEPA DRAFT EIS

DRAFT ENVIRONMENTAL JUSTICE EXPERTISE REPORT

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1 SUMMARY

The I-405 Corridor Program alternatives were evaluated for compliance with Presidential Executive Order (EO) 12898 and FHWA Order 6640.23. These orders establish that it is Federal policy to avoid to the extent practicable disproportionately high and adverse human health or environmental impacts on the minority or low-income population. For purposes of this analysis, significant adverse impacts are considered synonymous with high and adverse impacts as described in EO 12898 and FHWA Order 6640.23. As reported in the other expertise reports prepared for the I-405 Corridor Program, at the level of analysis performed, no significant adverse impacts are expected as a result of this project. Consequently none of the impacts of this project can be described as having a high and adverse impact in the context of EO 12898 or FHWA Order 6640.23. As there are no high and adverse impacts as a result of this project, this analysis therefore concludes that no high and adverse human health or environmental effects of the project are expected to fall disproportionately on minority or low-income populations. The project is therefore consistent with the policy established in EO 12898 and FHWA Order 6640.23.

1 INTRODUCTION

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1.1 1.1 Report Organization and Scope

This report is organized in five major sections which encompass: an overview of the program, analytical methodology, outreach to the potentially affected population, alternative I-405 corridor improvements, affected environment (distribution of the population), and effects of the alternatives on the minority and low-income population. The report documents the outreach and involvement program, key issues raised by the minority and/or low-income population and how they were addressed, and a determination as to whether or not disproportionately high and adverse impacts are likely to fall on the minority and/or low-income population. The scope of this study is bounded by, and is in compliance with, Executive Order 12898 *Environmental Justice* and Federal Highway Administration (FHWA) Order 6640.23 on Environmental Justice.

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1.2 1.2 Overview of I-405 Corridor Program

Construction of the 30-mile Interstate 405 (I-405) freeway in the early 1960s as a bypass around Seattle for Interstate 5 (I-5) traffic also opened the rural, agricultural countryside east of Lake Washington to commercial and residential development. Interstate 405 currently ranges from six to ten lanes along the 30-mile corridor, and it is the designated military route through Seattle, as Interstate 5 was deemed too constricted (see Figure 1.1). Construction of the Evergreen Point (SR 520) floating bridge in 1963 further set the stage for rapid and substantial changes on the Eastside.

Today, I-405 has changed dramatically from a Seattle bypass to become the region's dominant north-south travel corridor east of I-5. More than two-thirds of the total trips on I-405 begin and end in the corridor itself. The remaining third have strong ties with the communities along SR 167 to the south of the study area, and with developing areas to the east within the urban growth area of King County. However, as the regional importance of the I-405 corridor has grown, it has become increasingly evident that worsening traffic congestion within the corridor has the potential to create serious adverse effects on personal and freight mobility, the environment, the state and regional economy, and the quality of life.

In response to these and other concerns, the Washington State Department of Transportation (WSDOT) has joined with the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Central Puget Sound Regional Transit Authority (Sound Transit), King County, and local governments to develop strategies to reduce traffic congestion and improve mobility in the I-405 corridor from Tukwila in the south to Lynnwood in the north.

The I-405 Corridor Program is a cooperative effort involving over 30 agencies that have responsibilities for planning, regulating, and implementing transportation improvements in the 250+ square-mile corridor. The decision to be made through this combined National Environmental Policy Act/State Environmental Policy Act EIS is to identify the best mix of modal solutions, transportation investments, and demand management to improve movement of people and goods

throughout the I-405 corridor, reduce foreseeable traffic congestion, and satisfy the overall program purpose and need.

The programmatic I-405 Corridor Program EIS focuses on broad corridor-wide issues related to travel mode and transportation system performance. This is consistent with the program objective to enable program decisions focusing on mode choice, corridor selection, general location of improvements, and how combinations of improvements may function together as a system to solve corridor-wide transportation problems. A programmatic level of analysis is appropriate and necessary at this early stage in the decision-making process, when many project-level design details would not be meaningful in evaluating effects on mobility and environmental quality across such a large area. Subsequent environmental analysis, documentation, and review will be prepared to enable decisions regarding site-specific, project-level details on alignments, high-capacity transit technology, project impacts, costs, and mitigation measures after a preferred alternative has been identified.

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1.3 1.3 Need For the Proposed Action

The need identified for the I-405 Corridor Program is:

> To improve personal and freight mobility and reduce foreseeable traffic congestion in the corridor that encompasses the I-405 study area from Tukwila to Lynnwood in a manner that is safe, reliable, and cost-effective.

The following sub-sections expand upon the issues and trends that influence the need for the proposed action, particularly with respect to travel demand and traffic congestion, and the attendant effects on freight mobility and safety.

1.3.1 1.3.1 Growth in Travel Demand

Between 1970 and 1990, communities in the I-405 corridor grew much faster than the central Puget Sound region as a whole. During the 20-year period, employment in the study area increased over 240 percent from 94,500 to 323,175 and population grew nearly 80 percent from 285,800 to 508,560.

Population and employment continued to grow during the 1990s; in particular, employment grew at an annual rate of almost 3.5 percent. Looking ahead, growth in the corridor through 2020 likely would keep pace with the robust rate of growth in the Puget Sound region. The I-405 corridor population and employment is forecast to increase by more than 35 percent. This means that by 2020 an additional 144,000 people are expected to be employed within the study area, while the population is expected to reach approximately 765,000, an increase of more than 200,000 people from 1997.

1.3.1.1 1.3.1.1 Travel Demand

Travel demand trends in the I-405 corridor match these population and employment trends: between 1995 and 2020, person trips are generally expected to increase more than 50 percent. Travel demand in terms of traffic volume is heaviest within the study area on I-405 itself, with the

Legend: Study Area

- Study Area Boundary
- Urban Growth Area
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Woodway
Mountlake Terrace
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Hunts Point
Yarrow Point
Clyde Hill
Medina
NE 8th St
Bellevue
148th Ave SE
Redmond Fall City Rd
Lake Sammamish
Seattle
Beaux Arts
Mercer Island
Sammamish
Duwamish River
Newcastle
Coal Creek Pky SE
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
Kent
132nd Ave SE
Des Moines
Covington
Auburn
Federal Way
Everett
Seattle
Tacoma

5 90 405 527 524 522 202 99 520 509 900 167 515 169 203 18 516

Study Area

Figure No. 1.1

freeway carrying 60 to 70 percent of the total daily traffic volumes passing though the study area in the north-south direction. Conversely, the arterial streets carried 30 to 40 percent. In the east-west direction, the arterial street system plays an important role, with volumes almost equally distributed between the arterial streets and the two east-west freeways, I-90 and SR 520. In 1999, the highest volumes on I-405 occurred in the vicinity of NE 8th Street in Bellevue: about 210,000 vehicles per day. I-405 at SR 900 in Renton typified traffic volumes on I-405 south of I-90, carrying about 138,000 vehicles per day.

WSDOT's most recent traffic count data (1999) show the lowest I-405 traffic volumes, 95,000 vehicles per day, in the north end between SR 522 and I-5 at Swamp Creek, and the highest, 210,000 vehicles per day, between I-90 and SR 520. The section south of Kirkland to SR 520 carries 185,000 to 195,000 vehicles per day, and the section south of I-90 typically carries 150,000 vehicles per day. Figure 1.2 shows these findings. This variation in traffic volumes is the result of different travel demands within the corridor as well as the available capacity on the freeway.

1.3.1.2 1.3.1.2 Mode Split

Single-occupant vehicles (SOVs) generate the majority of traffic demand: up to 78 percent of work trips within the I-405 study area are SOVs. High-occupancy vehicles (HOVs) and transit users comprise around 20 percent of all work trips within the study area. SOV use in the study area is higher than the average for King County, while HOV and walk/bike percentages are lower. These results reflect the more suburban character of the I-405 study area.

The segment of I-405 with the highest peak-period transit ridership is between SR 520 and the Totem Lake area (2,100 riders). Transit ridership near each of the northern and southern termini of I-405 is less than 1,000 riders during peak periods. To encourage more transit demand, Sound Transit's Regional Express program is currently in the planning and early design stages of new park-and-ride lots, transit centers, and direct access ramps, including large-scale improvements to several I-405 interchanges. King County Metro and Sound Transit's evolving bus transit services concept for the I-405 study area would serve multiple activity centers, instead of the traditional Seattle/Bellevue hub-and-spoke design.

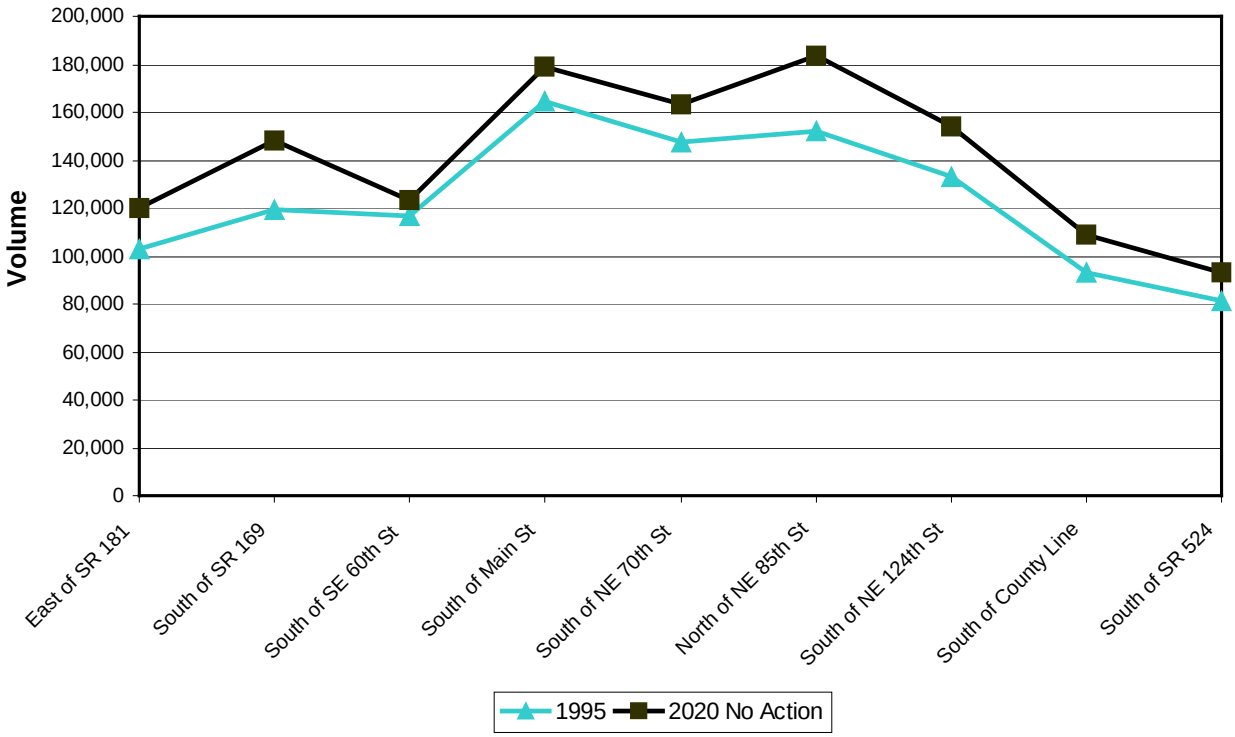
1.3.1.3 1.3.1.3 Trip Characteristics

Travel demand on I-405 appears greater for longer trips; along several sections of I-405, the average vehicle trip length exceeds 25 miles, roughly three times the study area average. Forecasts for 2020 show the freeway attracting even more long trips, with over 50 percent of all trips on I-405 exceeding 30 miles in length.

Today in the study area, only 20 percent of the total daily person-trips are home-based work trips, that is, commute trips directly to and from work. Thirty-nine percent of daily person-trips are other home-based trips (e.g., shopping, recreational, personal business) and 28 percent are non-home-based trips (e.g., traveling from work to daycare or shopping). School (2 percent) and commercial vehicle trips (11 percent) make up the rest. The relative shares of each trip purpose are expected to be similar in 2020. The fairly small share of trips that are purely to and from work reflects the fact that people are increasingly linking their trips, stopping on the way home to shop, pick up children, etc.

(which are considered non-home based trips). This poses a challenge for transit and carpool/vanpool use.

Figure 1.2: Daily Traffic Volumes at Selected Locations on I-405



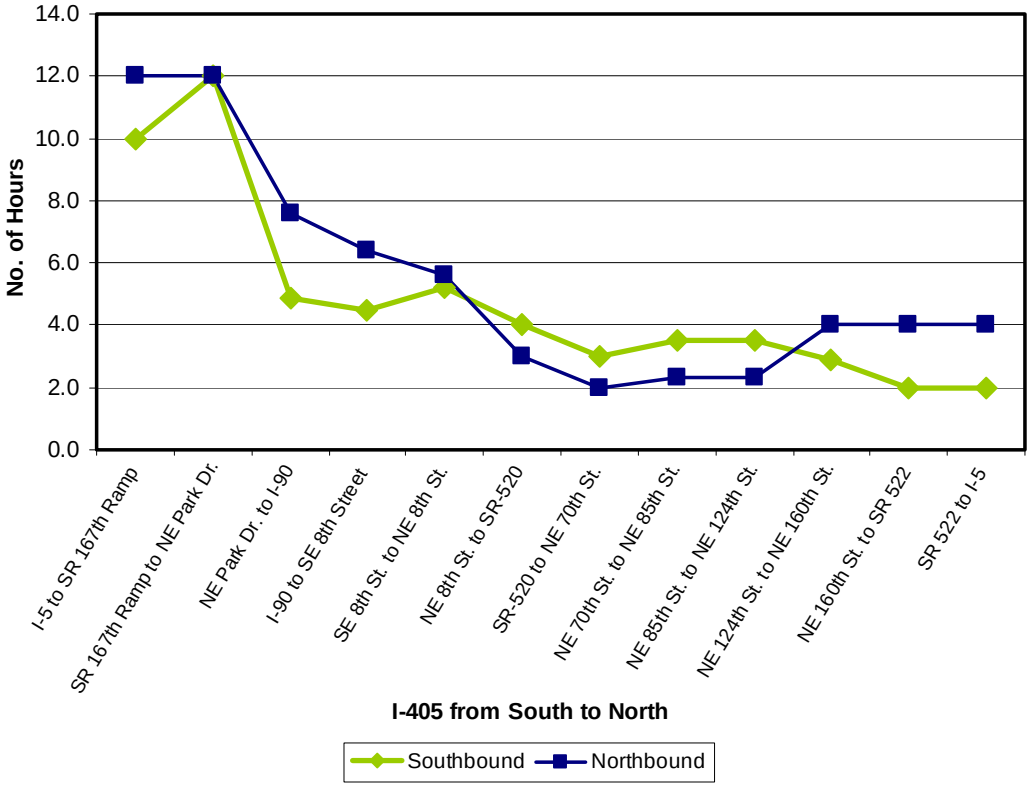
Source: PSRC Model

1.3.2 1.3.2 Traffic Congestion and Reliability

1.3.2.1 1.3.2.1 Traffic Congestion

Heavy travel demand and frequent traffic incidents contribute to substantial traffic congestion on I-405, although they are not the only causes. Traffic congestion along I-405 is widespread during the morning and afternoon peak periods and has spread to surrounding time periods. A useful way to examine daily congestion is to look at the number of hours during which a facility is congested. For purposes of this analysis, "congestion" on the freeway is defined as travel speeds below 45 mph. Figure 1.3 illustrates the severity of traffic congestion that was present in 1997 at twelve points along I-405. The duration of traffic congestion in the northbound and southbound directions is roughly the same. The most congested area of I-405 is from I-5 in Tukwila to NE Park Drive in the city of Renton. Traffic congestion for 10-12 hours per day is typical in this section. For most other sections, traffic congestion lasts 2 to 7 hours per day.

Figure 1.3: Hours of Traffic Congestion on I-405



Source: PSRC Model, Mirai Associates

The average daily "volume per freeway lane" is quite consistent throughout the corridor, which demonstrates that traffic volumes alone do not cause congestion. The most likely reason for the high hours of congestion in the south end of I-405 relates to freeway "friction" caused by curves (e.g., the "S-Curves"), grades (e.g., Kennydale Hill), and complex interchanges at I-5 and SR 167.

Traffic congestion on I-405 often results in blockage of mainline flows throughout the day by vehicles that cannot get onto the ramps at such locations as SR 167, I-90, SR 520, and SR 522. The spill-over traffic from the ramps has created substantial mainline traffic congestion and operational hazards throughout the I-405 corridor. This congestion also causes traffic to back up onto local arterials.

1.3.2.2 1.3.2.2 Travel Time

Variation in congestion causes travel times to vary widely within the I-405 study area, depending upon the origin and destination of the trip and the mode of travel being used. Table 1.1 summarizes typical P.M. peak-hour travel times (1995 data) for a variety of study area trips, averaging 23 miles in length. The times are for door-to-door travel, including in-vehicle time and access to the trip's origin and destination. The fastest trips are typically by non-transit HOV mode, particularly for longer trips along I-405 that can take full advantage of the HOV lane system. Traveling along the full length of I-

405 during the peak period can take longer than one hour for general traffic. Transit travel times are often at least twice as long as driving the equivalent distance, especially for people walking to the transit stops. Transit travel times are 10 to 15 percent faster for park-and-ride access trips compared with walk access transit trips. This is partially due to shorter wait times at park-and-ride locations created by more frequent transit service.

Table 1.1: Comparison of Typical I-405 Study Area P.M. Peak Hour Travel Times by Mode

Trip	Distance (miles)	General Traffic Travel Time (min)	HOV Travel Time (min)	Transit Travel Time Walk Access (min)	Transit Travel Time Park-and-Ride Access (min)
Bellevue Central Business District (CBD) to Federal Way/Kent	25	56	40	95	83
Renton to Mill Creek	33	65	49	125	105
Bellevue CBD to Edmonds/Lynnwood	19	42	38	85	76
Tukwila/SeaTac to Redmond/Overlake	23	49	39	116	103
Issaquah/Cougar Mt. to Bothell/Kenmore	23	46	39	108	98
Issaquah/Cougar Mt. to Federal Way/Kent	23	56	47	132	118

Source: Puget Sound Regional Council (PSRC) Model - 1995 base year

1.3.2.3 1.3.2.3 Travel Time Reliability

Not only do travel times vary by segment within the I-405 study area, they are unpredictable from day to day. The reliability of travel times can be defined in terms of deviation from a mean travel time when travelers in the same transportation mode repeat their trips with identical travel routes starting at a same time of day. A transportation system provides a good level of service when travelers experience the same travel time every time or with little deviation.

The Washington State Transportation Center (TRAC) conducted research to measure the performance of the freeway system in the Central Puget Sound area, which includes the travel time reliability measure for general traffic along I-405. The most recent analysis results are described in the report entitled Central Puget Sound Freeway Network Usage and Performance, 1999 Update, Volume 1 (Washington State Transportation Center and Washington State Department of Transportation). The following summarizes the findings of the travel time reliability data prepared by the TRAC for 1999.

- Existing travel time reliability for the vehicles traveling *from Tukwila to Bellevue CBD* is very poor during the mid-day and evening periods and extremely poor during the morning peak period.
- Existing travel time reliability for the vehicles traveling *from Bellevue CBD to Tukwila* is poor throughout the day (from 6:00 A.M. to 6:30 P.M.). In particular, the travel time reliability during the afternoon peak period is very poor and the traffic flows in the period are highly unstable.
- Existing travel time reliability for the trips *from Bellevue CBD to SR 522* is relatively poor during the P.M. peak period. Travelers starting trips during other periods have experienced good travel time reliability.

➢ Existing travel time reliability problems for the trips *from SR 522 to Bellevue CBD* are confined to the A.M. peak period. The problem is worst at 8 A.M.

Traffic incidents along the freeway corridor are major causes of the reliability problems. The State's Incident Management Program was implemented to help improve overall travel time reliability within the I-405 Corridor. Reliability of travel in the HOV lanes is considerably better than in the general purpose lanes. HOV travel times typically operate from 15-20 miles per hour faster than the adjacent general purpose lanes during congested time periods. HOV travel time reliability suffers when there is a major incident along I-405 with stop-and-go conditions. In these situations, HOV speeds drop and the level of HOV lane violations tends to increase.

1.3.3 1.3.3 Freight Mobility

The decreasing reliability of the regional transportation system, including I-405, is creating a serious problem for regional freight mobility. The central Puget Sound region serves as an important freight gateway to Pacific Rim countries. Automobiles, forest and agricultural products, communications and computer equipment, and hundreds of other items continuously move over the region's roadways and railroads, to seaports and airports. Substantial delay as a result of transportation system congestion is costing the region's businesses nearly $700 million a year, according to information from WSDOT. The cost to the freight industry itself is estimated to be around $200 million per year.

Products shipped by truck across I-90 from Eastern Washington reach points north and south of Seattle via I-405. At the same time, I-405 serves as a heavily used transport corridor for local freight delivery to and from the cities along the corridor. Smaller trucks, such as delivery vans, account for many freight trips within the region, and these trips could benefit greatly from roadway improvements to I-405.

Interstate 405 continues to be used by freight carriers as an alternative to the preferred I-5 route when severe congestion occurs on I-5 in downtown Seattle near the Convention Center (one of the most substantial freight mobility bottlenecks in the region). I-405 also provides ready access to the distribution centers along SR 167 in the Kent Valley. Volumes of heavy trucks on the portion of I-405 south of I-90 are about double those along the northern portion due to truck movements to and from the Kent Valley. Truckers identify congestion at the SR 167/I-405 interchange as one of the worst transportation system problems in the region, and the trucking community supports improvements to this major truck corridor interchange as one of its top priorities.

The latest data indicate that the central Puget Sound region's roadways carry approximately 1.2 million truck trips each day, with about 70 percent of those trips occurring within King County. I-405 carries a substantial portion of those trips, moving up to 90 percent of the total truck origins and destinations in east King County. Truck volumes along I-405 are expected to grow by 50 percent by the year 2010. Reductions in system reliability and resulting higher transportation costs increase the cost of manufacturing and distributing goods, while adversely affecting economic vitality and job creation. Accessibility to markets becomes increasingly difficult with worsening traffic congestion and delay. Improvements to the I-405 corridor could provide tangible economic benefits for all of Washington State.

1.3.4 1.3.4 Safety

Twenty-nine of the 280 high accident locations in King and Snohomish counties are located along I-405. Most high accident locations are associated with ramps connecting to I-405, including those at SR 181 (Interurban), SR 169, SR 900 (Sunset and Park), Coal Creek Parkway, SE 8th Street, NE 4th Street, NE 8th Street, SR 908 (NE 85th Street), NE 116th Street, NE 160th Street, and SR 527. The portion of I-405 north of SR 527 is identified as a high accident corridor due to the relatively higher speeds and more serious injuries associated with these accidents.

Over the three-year period from 1994 to 1996, a total of 5,580 accidents was reported along I-405. Most collisions occurred on the mainline freeway, with about one-fourth of all accidents occurring on the ramps, collector-distributor roads, and cross streets at the interchanges. About half of all collisions involve property damage only, while half involve injuries or fatalities. This injury pattern applies equally to the mainline and ramp segments; however, all seven fatalities reported in this period occurred on the I-405 mainline.

The overall accident rate along I-405 (1.6 accidents per million vehicle miles) is about midrange compared to other freeways in King County. The rates are lower than the average rate for all state highways (1.88 accidents per million vehicle miles, or MVM) and for state highways in King County (2.27 accidents per MVM). On comparable local freeways, I-5 and SR 520 both exhibit accident rates of about 2.0 accidents per MVM. WSDOT's ramp metering program on I-405 has been very successful. Rear-end and sideswipe accidents have decreased by 60 percent to 70 percent near locations with ramp meters.

For state roads serving as surface arterial routes, accident rates typically fall into the range of three to five accidents per MVM. This rate is related to the presence of traffic signals, driveways, pedestrians, and bicyclists, and lower levels of access control. These accident rates are typical of urban arterial facilities. Accident rates for selected arterial and collector routes in the primary study area generally range between two and four accidents per MVM, with some streets higher. These streets also experience higher accident rates due to the presence of signalized intersections, driveways, and other conflicts.

■

1.4 1.4 Purpose of the Proposed Action

The purpose of the proposed action is:

> To provide an efficient, integrated, and multi-modal system of transportation solutions within the corridor that meets the need in a manner that:
>
> - ➤ Provides for maintenance or enhancement of livability for communities within the corridor;
> - ➤ Provides for maintenance or improvement of air quality, protection or enhancement of fish-bearing streams, and regional environmental values such as continued integrity of the natural environment;
> - ➤ Supports a vigorous state and regional economy by responding to existing and future travel needs; and

➤ Accommodates planned regional growth.

■

1.5 1.5 Study Area

The study area for the I-405 Corridor Program defines the general boundaries of the I-405 corridor and encompasses the essential improvements proposed within each alternative. It encompasses an area of approximately 250 square miles that extends on both sides of I-405 between its southern intersection with I-5 in the city of Tukwila and its northern intersection with I-5 in Snohomish County. This area includes the cities of Tukwila, Renton, Newcastle, Bellevue, Redmond, Kirkland, Woodinville, and Bothell, as well as portions of the cities of Issaquah, Kenmore, Kent, Lynnwood, and Mercer Island and adjacent unincorporated areas of King and Snohomish counties.

For purposes of environmental analysis, documentation, and review, potential substantial adverse effects are identified and evaluated wherever they are reasonably likely to occur in the region.

2 DESCRIPTION OF ALTERNATIVES

Four programmatic action alternatives and a No Action Alternative are evaluated in this Environmental Impact Statement (EIS). Each of the four action alternatives is a combination of multi-modal transportation improvements and other mobility solutions packaged to work together as a system. Each package demonstrates a unique emphasis in response to the purpose and need for the I-405 Corridor Program. The improvements and mobility solutions that comprise each action alternative are assembled from the following major elements:

- Transportation demand management (TDM)
- Regional transportation pricing
- Local transit service (bus and other technologies)
- Bus rapid transit (BRT) operating in improved-access high-occupancy vehicle lanes on I-405, I-90, and SR 520
- Fixed-guideway high-capacity transit (HCT) operating with physical separation from other transporation modes
- Arterial high-occupancy vehicle (HOV) and bus transit priority improvements
- HOV express lanes on I-405 and HOV direct access ramps
- Park-and-ride capacity expansions
- Transit center capacity improvements
- Basic I-405 safety and operational improvements
- I-405 general purpose lanes
- I-405 collector-distributor lanes
- I-405 express lanes
- SR 167 general purpose lanes
- Capacity improvements on freeways connecting to I-405
- Planned arterial improvements
- Capacity improvements on north-south arterials
- Arterial connections to I-405
- Pedestrian and bicycle improvements
- Intelligent transportation system (ITS) improvements
- Truck freight traffic enhancements

These elements are described in greater detail in Appendix A (I-405 Corridor Program - Major Elements of Alternatives). Table 2.1 shows the system elements contained in each of the alternatives.

Table 2.1: System Elements Contained in Each Alternative

	No Action Alternative	Alternative 1 HCT/TDM Emphasis	Alternative 2 Mixed Mode with HCT/Transit Emphasis	Alternative 3 Mixed Mode Emphasis	Alternative 4 General Capacity Emphasis
Committed and funded freeway projects	X	X	X	X	X
Committed and funded HOV projects	X	X	X	X	X
Committed and funded arterial projects	X	X	X	X	X
Park–and-ride expansions included in No Action	X	X	X	X	X
Transit center improvements included in No Action	X	X	X	X	X
Transportation Demand Management (TDM)	X	X	X	X	X
Expanded TDM regional congestion pricing strategies		X			
Expand transit service by 100% compared to K. Co. 6-year plan		X	X	X	
Expand transit service by 50% compared to K. Co. 6-year plan					X
Physically separated, fixed-guideway HCT system		X	X		
Bus rapid transit operating in improved access HOV lanes				X	
Arterial HOV priority for transit		X	X	X	
HOV direct access ramps on I-405			X	X	X
Additional park-and-ride capacity expansion		X	X	X	
Additional transit center improvements		X	X	X	
Basic I-405 safety and operational improvements		X	X	X	X
I-405/ SR 167 interchange ramps for all major movements			X	X	X

Table 2.1: (continued) System Elements Contained in Each Alternative

	No Action Alternative	Alternative 1 HCT/TDM Emphasis	Alternative 2 Mixed Mode with HCT/Transit Emphasis	Alternative 3 Mixed Mode Emphasis	Alternative 4 General Capacity Emphasis
One added general purpose lane in each direction on I-405			X		X
Two added general purpose lanes in each direction on I-405				X	
Two express lanes added in each direction on I-405 [a]					X
Widen SR 167 by one lane each direction to study area boundary			X	X	X
Improved capacity of freeways connecting to I-405			X	X	X
Planned arterial improvements			X	X	X
Complete missing segments of major arterial connecting routes [b]				X	
Expand capacity on north-south arterials [b]					X
Upgrade arterial connections to I-405 [b]			X	X	X
Pedestrian / bicycle connections and crossings of I-405		X	X	X	X
Intelligent transportation system (ITS) improvements		X	X	X	X
Truck freight traffic enhancements		X	X	X	

[a] To be studied as general purpose lanes and as managed high-occupancy/toll (HOT) lanes.
[b] With jurisdictional approval.

■

1.5.1 2.1 No Action Alternative

The No Action Alternative includes the funded highway and transit capital improvement projects of cities, counties, Sound Transit, and WSDOT. These projects are already in the pipeline for implementation within the next six years, and are assumed to occur regardless of the outcome of the I-405 Corridor Program. For this reason, they are referred to collectively as the No Action Alternative.

Under the No Action Alternative, only limited expansion of state highways would occur. No expansion of I-405 is included; however, a new southbound I-405 to southbound SR 167 ramp modification would be constructed. Approximately 15 arterial widening and interchange improvement projects would be implemented within the study area by local agencies. Short-term

minor construction necessary for continued operation of the existing transportation facilities would be accomplished, and minor safety improvements would be constructed as required.

It is assumed that Phase I of Sound Transit's regional transit plan would be completed. Approximately 36 HOV direct access projects, arterial HOV improvements, park-and-ride expansions, and transit center enhancements would be implemented in the study area as part of the No Action Alternative. Bus transit service levels by the 2020 horizon year are based upon the Puget Sound Regional Council (PSRC) Metropolitan Transportation Plan. A 20 percent increase in bus transit service hours above the current King County 6-year plan level is assumed by year 2020. Parking costs are expected to increase due to market forces. Additional urban centers and major employment centers within the study area are also assumed to implement parking charges by 2020.

These baseline transportation improvement projects are, or will be, the subject of separate and independent project-specific environmental analysis, documentation, and review. Their direct impacts are not specifically evaluated by the I-405 Corridor Program. However, the secondary and cumulative impacts of these projects are addressed as part of the analyses contained herein.

Figure 2.1 shows the locations of the improvements contained in the No Action Alternative. Appendix B (I-405 Corridor Program EIS Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

■

1.5.2 2.2 Alternative 1: High-Capacity Transit/TDM Emphasis

This alternative attempts to minimize addition of new impervious surface from general purpose transportation improvements and to encourage transit use within the study area. To do this, Alternative 1 emphasizes reliance on a new physically separated fixed-guideway HCT system, substantial expansion of local bus transit service, non-construction mobility solutions such as regional transportation pricing, and transportation demand management (TDM) strategies. It does not include any increase in roadway capacity beyond the No Action Alternative. All improvements contained in the No Action Alternative are included in Alternative 1, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Alternative 1 includes a physically separated, fixed-guideway HCT system, potentially using some form of rail technology and potentially operating within portions of the existing Burlington Northern Santa Fe (BNSF) right-of-way. The HCT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. (The effects of recent transit reductions on short-term transit service have not been assumed.) Arterial HOV priority for transit, additional park-and-ride capacity, and additional transit center improvements also would be provided.

Legend: No Action Alternative Projects

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Mountlake Terrace
Woodway
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Narrow Point
Hunts Point
Clyde Hill
Medina
NE 8th St
Bellevue
Lake Sammamish
Redmond Fall City Rd
Seattle
Beaux Arts
148th Ave SE
Sammamish
Mercer Island
Duwamish River
Coal Creek Pky SE
Newcastle
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
132nd Ave SE
Kent
Des Moines
Maple Valley
Covington
Auburn
Federal Way

5 90 405 527 524 522 202 520 99 509 900 167 515 169 203 18 516

No Action Alternative

Figure No. 2.1

A package of basic improvements to I-405 would be implemented, including climbing lanes, auxiliary lanes, I-90/Coal Creek interchange improvements, and I-405/SR 167 interchange improvements, among others. No additional general purpose lanes on I-405 would be provided.

Limited arterial HOV/transit improvements would be provided to facilitate access to I-405 and the fixed-guideway HCT system, along with non-construction treatments such as providing priority for transit at signals and intersections. Regional pricing strategies similar to those currently being studied by the Puget Sound Regional Council (PSRC) would be implemented along with a package of core TDM strategies that are common to all the action alternatives.

Figure 2.2 shows the location of improvements contained in Alternative 1. Appendix A (I-405 Corridor Program - Major Elements of Alternatives) describes the system elements that are the building blocks for the alternatives. Appendix B (I-405 Corridor Program EIS Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

■

1.5.3 2.3 Alternative 2: Mixed Mode with High-Capacity Transit/Transit Emphasis

This alternative attempts to improve mobility options in the study area relative to Alternative 1 by providing the same substantial commitment to transit, combined with the minimum increase in roadway capacity for HOV and general purpose traffic. To do this, Alternative 2 would implement a new physically separated, fixed-guideway HCT system, substantial expansion of local bus transit service, one added lane in each direction on I-405, and improvements to connecting arterials. All improvements contained in the No Action Alternative are included in Alternative 2, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Alternative 2 includes a physically separated, fixed-guideway HCT system, potentially using some form of rail technology. The HCT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. Arterial HOV priority for transit, additional park-and-ride capacity, and additional transit center improvements are included, as well as completion of the HOV freeway-to-freeway ramps along I-405.

To increase general purpose capacity, I-405 would be widened by one lane in each direction. One lane also would be added in each direction on SR 167 to the study area boundary. The package of basic improvements to I-405 would be implemented, along with the core TDM strategies that are common to all action alternatives. New capacity improvements on connecting arterials and freeways would be provided along with planned arterial improvements of local jurisdictions.

Figure 2.3 shows the location of improvements contained in Alternative 2. Appendix A (I-405 Corridor Program - Major Elements of Alternatives) describes the system elements for the alternatives. Appendix B (I-405 Corridor Program EIS Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

■

1.5.4 2.4 Alternative 3: Mixed Mode Emphasis

This alternative attempts to substantially improve mobility options for all travel modes and to provide a HCT system throughout the study area at a lower cost than the physically separated, fixed-guideway system proposed in Alternatives 1 and 2. To do this, Alternative 3 would implement a new bus rapid transit (BRT) system, substantial expansion of local bus transit service, two added lanes in each direction on I-405, and improvements to arterials within the study area. All improvements contained in the No Action Alternative are included in Alternative 3, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Alternative 3 includes a BRT system operating in improved-access HOV lanes on I-405, I-90, and SR 520. The BRT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. Improved arterial HOV priority for transit, park-and-ride capacity, transit center improvements, and HOV direct access are included, as well as completion of the HOV freeway-to-freeway ramps along I-405.

This alternative would substantially increase capacity for general purpose traffic on I-405 by adding two lanes in each direction and improving major interchanges. These added general purpose lanes replace most of the auxiliary and climbing lanes contained in the package of basic improvements to I-405 that are common to the other action alternatives. One lane would be added in each direction on SR 167 to the study area boundary. The core TDM strategies would be implemented. New capacity improvements on connecting arterials and freeways would be provided. Selected arterial missing links would be completed together with planned arterial improvements of local jurisdictions.

Figure 2.4 shows the location of improvements contained in Alternative 3. Appendix A (I-405 Corridor Program - Major Elements of Alternatives) describes the system elements for the alternatives. Appendix B (I-405 Corridor Program EIS Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

■

1.5.5 2.5 Alternative 4: General Capacity Emphasis

This alternative places the greatest emphasis on increasing general purpose and HOV roadway capacity, with substantially less reliance on new transit facilities or added local bus service than any of the other action alternatives. To do this, Alternative 4 would provide one additional lane in each direction on I-405, a new four-lane I-405 express roadway, and the other general purpose and HOV roadway improvements on I-405 and connecting freeways contained in Alternative 3. The expansion of local bus transit service would be about half that proposed under the other action alternatives. All improvements contained in the No Action Alternative are included in Alternative 4, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Legend: Alternative 1: High Capacity Transit/ Transportation Demand Management (TDM) Emphasis

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Woodway
Mountlake Terrace
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Narrow Point
Hunts Point
Clyde Hill
Medina
NE 8th St
Bellevue
Lake Sammamish
Redmond Fall City Rd
Seattle
Beaux Arts
148th Ave SE
Sammamish
Mercer Island
Duwamish River
Coal Creek Pky SE
Newcastle
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
132nd Ave SE
Kent
Des Moines
Maple Valley
Covington
Auburn
Federal Way

5 90 527 524 522 202 405 99 520 203 509 900 169 167 515 18 516

Alternative 1: High Capacity Transit/ Transportation Demand Management (TDM) Emphasis

Figure No. 2.2

Legend: Alternative 2: Mixed Mode with High Capacity Transit Emphasis

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Woodway
Mountlake Terrace
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Narrow Point
Hunts Point
Clyde Hill
Medina
NE 8th St
Bellevue
Redmond Fall City Rd
Lake Sammamish
Seattle
Beaux Arts
Mercer Island
148th Ave SE
Sammamish
Duwamish River
Coal Creek Pky SE
Newcastle
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
132nd Ave SE
Kent
Des Moines
Maple Valley
Covington
Auburn
Federal Way

Alternative 2: Mixed Mode with High Capacity Transit Emphasis

Figure No. 2.3

Legend: Alternative 3: Mixed Mode Emphasis

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Mountlake Terrace
Woodway
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Hunts Point
Yarrow Point
Clyde Hill
Medina
NE 8th St
Bellevue
Lake Sammamish
Redmond Fall City Rd
Seattle
Beaux Arts
Mercer Island
148th Ave SE
Sammamish
Duwamish River
Coal Creek Pky SE
Newcastle
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
132nd Ave SE
Kent
Des Moines
Maple Valley
Covington
Auburn
Federal Way

Alternative 3: Mixed Mode Emphasis

Figure No. 2.4

Alternative 4 would expand freeway capacity by adding one additional general purpose lane in each direction on I-405 in most segments, improving major interchanges, and constructing a new four-lane I-405 express roadway consisting of two lanes in each direction with limited access points. Completion of the HOV freeway-to-freeway ramps along I-405 and the package of basic improvements to I-405 would be implemented.

Arterial improvements would include additional expansion of major arterial routes and connections to I-405 in conjunction with the planned arterial improvements of local jurisdictions. Transit in this alternative is assumed to be a continuation of the existing local and express bus transit system with a 50 percent increase in service compared to the current King County 6-year plan. Park-and-ride capacity would be provided along with the core TDM strategies that are common to all action alternatives.

Figure 2.5 shows the location of improvements contained in Alternative 4. Appendix A (I-405 Corridor Program - Major Elements of Alternatives) describes the system elements for the alternatives. Appendix B (I-405 Corridor Program EIS Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

Legend: Alternative 4: General Capacity Emphasis

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

N

1 0 1 2 3 Miles

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

SNOHOMISH

KING

Mill Creek
Lynnwood
Edmonds
Woodway
Mountlake Terrace
Brier
Bothell
Kenmore
Woodinville
Shoreline
Lake Forest Park
Simonds Rd NE
Duvall
NE 128th St
Kirkland
Redmond
Lake Washington
Union Bay
Lake Union
Yarrow Point
Hunts Point
Clyde Hill
Medina
NE 8th St
Bellevue
Redmond Fall City Rd
Lake Sammamish
Seattle
Beaux Arts
Mercer Island
148th Ave SE
Sammamish
Duwamish River
Coal Creek Pky SE
Newcastle
Issaquah
Tukwila
SE 128th St
Renton
Burien
Normandy Park
SeaTac
SE Petrovitsky Rd
68th Ave
132nd Ave SE
Kent
Des Moines
Maple Valley
Covington
Auburn
Federal Way

Alternative 4: General Capacity Emphasis

Figure No. 2.5

3 METHODOLOGY, COORDINATION, AND OUTREACH

■

3.1 Overview of Executive Order 12898 and FHWA Order 6640.23

Executive Order 12898, issued by President Clinton in 1994, requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations…". In his memo transmitting the Executive Order to federal agencies, President Clinton further specified that, "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA)."

Guidance on how to implement the Executive Order and conduct an Environmental Justice analysis has been issued by the President's Council on Environmental Quality (CEQ, 1997) and several federal agencies, including the U.S. Department of Transportation (DOT Order 5610.2) and the Federal Highway Administration (FHWA Order 6640.23).

The FHWA Order provides guidance on determining when a disproportionately high and adverse impact is likely, and how to respond if such a finding is made. When determining whether a particular program, policy, or activity

> ...will have disproportionately high and adverse effects on minority and low-income populations, FHWA managers and staff should take into account mitigation and enhancements measures and potential offsetting benefits to the affected minority or low-income populations. Other factors that may be taken into account include design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non low-income areas. FHWA managers and staff will ensure that the programs, policies, and activities that will have disproportionately high and adverse effects on minority populations or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effects are not practicable. In determining whether a mitigation measure or an alternative is "practicable," the social, economic (including costs) and environmental effects of avoiding or mitigating the adverse effects will be taken into account. FHWA managers and staff will also ensure that any of their respective programs, policies or activities that have the potential for disproportionately high and adverse effects on populations protected by Title VI ("protected populations") will only be carried out if:
>
> (1) a significant need for the program, policy or activity exists, based on the overall public interest; and

(2) alternatives that would have less adverse effects on protected populations have either:

(a) adverse social, economic, environmental, or human health impacts that are more severe; or

(b) would involve increased costs of an extraordinary magnitude.

Any relevant finding identified during the implementation of this Order must be included in the planning or NEPA documentation that is prepared for the activity.

■

3.2 Evaluation Measures and Data Sources

The alternatives were evaluated for compliance with Executive Order (EO) 12898 and FHWA Order 6640.23. These orders establish that it is Federal policy to avoid to the extent practicable disproportionately high and adverse human health or environmental impacts on the minority or low-income population. Consequently, three fundamental evaluation measures are used. First, a determination is made as to whether a minority or low-income population exists in the impact zones. Secondly, a determination is made as to which impacts of the alternatives are high and adverse. The third measure is one of magnitude of distribution or intensity to determine if high and adverse impacts fall disproportionately on the minority or low-income population.

For information on the existence of sufficiently high concentrations (50 percent or greater) of minority or low-income populations to meet the definition in the FHWA Order, 1990 Census Data were used. Other expertise reports (e.g., air quality, noise, displacements) were reviewed to discover if any significant (i.e., high and adverse) impacts are anticipated from the alternatives. Since there is no specific guidance in the Executive Order nor the FHWA Order, the test of disproportionality is made on the basis described in the U.S. Environmental Protection Agency's (USEPA) *Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits (Draft Revised Investigation Guidance)* (USEPA, June 2000). This guidance suggests two to three standard deviations above the mean as a quantitative measure of disparate effect.

■

3.3 Approach to Analyses

The locations of minority and low-income populations have been identified primarily using race and poverty data reported in the 1990 Census. To identify a specific geographic area (Census Block or Block Group) as a minority or low-income area, the percentage minority or percentage low-income of the area would have to be greater than the 50 percent threshold established in the FHWA Order. These thresholds were then used to create maps that display specific Census Block Groups as minority or low-income.

The other expertise reports for the I-405 program were reviewed to determine which environmental or human health impacts reach the level of high and adverse. Since there is no commonly accepted

definition of "high and adverse" and no official guidance on this, adverse impacts that exceeded the significance threshold were considered high and adverse.

In addition to the impacts found by professional analysts to be significant, any environmental or human health impacts which were of concern to the minority or low-income population were considered for further analysis.

While each element of this approach was conducted, no detailed analysis was required to make a determination. This is because none of the three fundamental tests were met:

1. The population in the impact zones is not 50 percent or more minority or low income (therefore, high and adverse impacts could not fall disproportionately on those segments of the population).

2. Experts in each environmental and human health discipline determined that there were no significant adverse effects at this level of detail (consequently, there are no known high and adverse human health or environmental effects).

3. There was no indication, based on the outreach and public involvement program to date, that there were issues of concern to the minority or low-income populations which would warrant further study.

■

3.4 Coordination with Agencies and Jurisdictions

Findings on issues of potential concern to the minority and low-income population are based on public outreach (see next section) and discussions with planners in Bellevue, Renton, Kirkland and Snohomish County, as well as Health Department planners from south, east and Northshore King County conducted by Carol Hunter of WSDOT. Ms. Hunter identified several initial locations of potential environmental justice conflicts (listed from south to north):

I-405 Expansion:

- Northeast quadrant of I-405/I-5 interchange area in Tukwila
- A large area in Renton south of Boeing
- Southeast quadrant of the I-90/I-405 interchange in Bellevue
- Between NE 8th Street and Lake Hills Connector in Bellevue
- Totem Lake area in Kirkland, NE 116th to NE 132nd Street
- Northwest quadrant of the I-405/SR 522 interchange in the Bothell area
- West of the I-405/I-5 interchange in Lynnwood

Arterial Expansion:

- A large area in Renton south of Boeing
- I-90 to SR 520 and 120th to 174th / Crossroads area in Bellevue
- Between Bel-Red Road and West Lake Sammamish Parkway in Redmond/Bellevue

From these contacts, the following issues were initially identified as having the potential to affect the minority or low-income populations.

The transportation issues that emerged are largely related to transit. There is concern about the limited bus service (infrequent during the peak and even less so during non-peak hours) to industrial areas where many minorities are employed. There is little transit service to the industrial areas in the first place, and many industrial and hotel jobs have shifts beginning and ending when there isn't any transit service available at all. Vanpooling to industrial/hotel areas appears to be an attractive option according to those interviewed. Other areas/services that are difficult to access are health care and social services which are often located in "lower rent suburban areas" with little transit or only peak period service. For low-income working people, getting to health care facilities is problematic during traditional office hours. They often need evening appointments when transit is unavailable or very limited.

Transit access to the University of Washington and language barriers limiting better access to current transit service were also mentioned as issues. The predominant non-English languages spoken in the general area include Spanish, Vietnamese, Mandarin, Ukrainian/Russian, and Korean.

Maintaining and enhancing the pedestrian environment is of considerable concern. Many low-income people have limited access to private vehicles, so preserving the ability to walk to shopping, services, and transit is an important mobility issue. The impacts on the pedestrian environment are of particular concern in the arterial widening components of the alternatives.

Widening of I-405 did not surface as a particularly important factor impacting low-income or minority groups. With the exception of the Renton area, there are very few pockets of low-income or minority communities directly adjacent to I-405. Tolls on I-405, however, would be a burden on the low-income population – but as one interviewee pointed out, the impact of the additional expense could be shared by carpooling.

■

3.5 Outreach to the Target Populations

Public input to the I-405 Corridor Program has been an essential element of the environmental review process. The public involvement program is ongoing and seeks to establish informed public consent for a strategy to improve mobility in the I-405 Corridor.

The public has been invited to provide substantive input during each phase of the decision process for the I-405 corridor program through a variety of venues. These include:

- A 39-member Citizen Committee made up of individuals who represent communities throughout the I-405 Corridor and offer differing perspectives on transportation and environmental issues related to the program
- Over five public forums/ workshops conducted at each stage of the decision process
- An active speakers bureau, from which presentations were made to over 35 civic, professional, and governmental bodies
- A project newsletter, which provides regular updates on the project to a mailing list of over 5,000 individuals and organizations

- A Project Hotline, which provides 24-hour access to individuals who have questions or concerns about the project
- A media relations program of news releases, press briefings, and editorial board briefings
- Self-administered questionnaires distributed during several points in the project to get feedback through the newsletter, the speakers bureau, and at public meetings
- A random-sample public opinion survey of 1,200 residents to be conducted in January 2001 to get representative feedback on the preliminary preferred alternative
- An interactive web site that provides regularly updated information on the work of the Executive Committee, Steering Committee, and Citizen Committee, along with technical information on the project and opportunities for public input and dialogue through an I-405 chat room feature

The I-405 Corridor Program's public involvement process is inclusive of all members of the public. All meetings for the project conform to all Americans with Disabilities Act (ADA) requirements, and materials are provided in formats accessible to everyone. In addition, in January-February 2001, special efforts will be undertaken to affirmatively reach out to groups and individuals who have traditionally been under-served by the transportation system or the transportation planning process through the project's speakers bureau and meetings with social service providers and their constituents.

4 AFFECTED ENVIRONMENT

■

4.1 Distribution of the Minority Population

The minority population as a percentage of the overall study area is very low (10 percent).

The distribution of the minority population within the study area is shown in Figure 4.1. This figure illustrates Census Block Groups where the density of minority individuals is sufficiently high (50 percent or greater) to be classified as a minority population according to FHWA Order 6640.23. While it is anticipated that the minority population in parts of this study area has increased since 1990, the distribution shown in the figure is thought to be reasonably accurate for the purposes of this study.

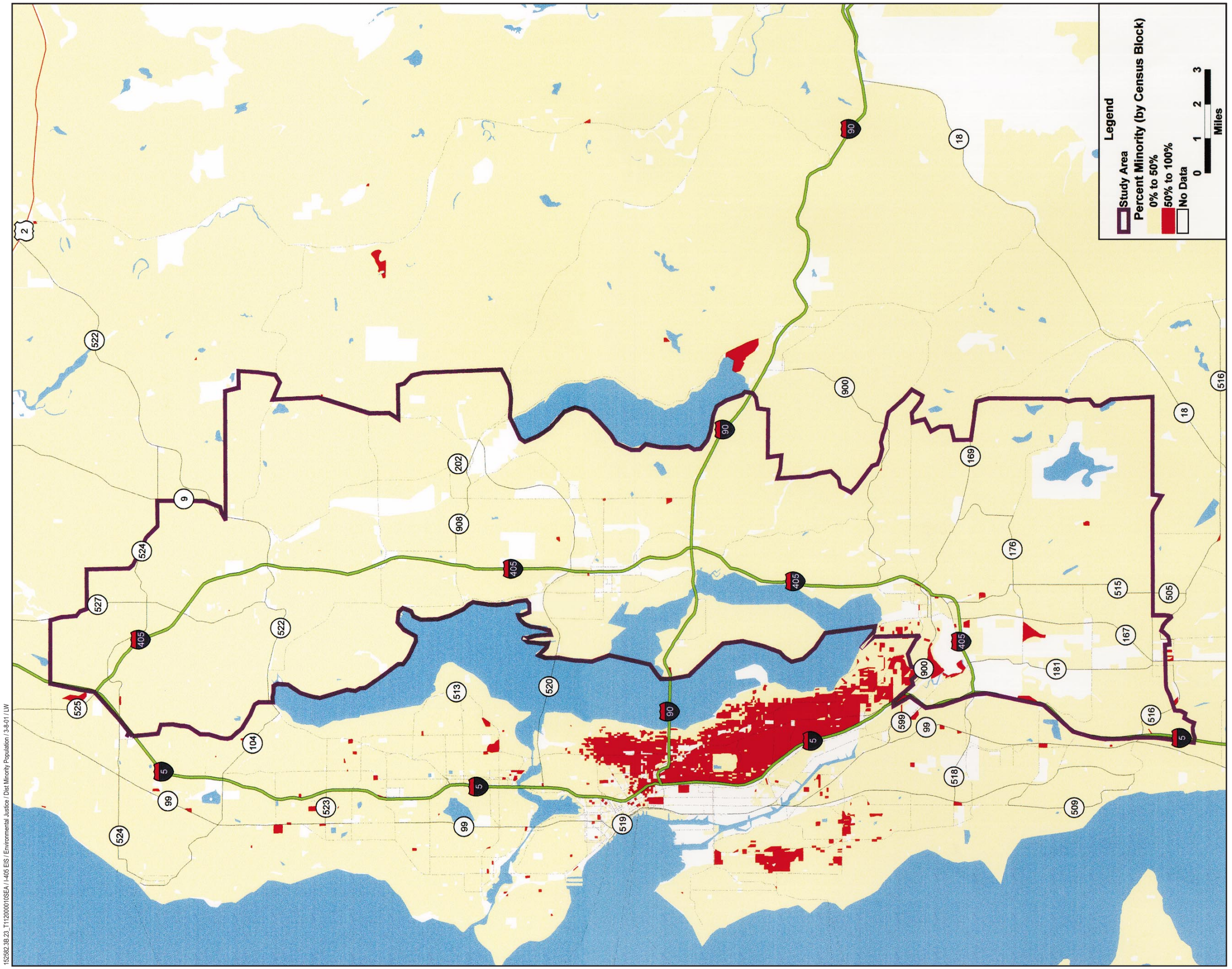
■

4.2 Distribution of the Low-Income Population

The low-income population as a percentage of the overall study area is very low (4 percent).

Unlike the minority population, there is no quantitative definition of how many low-income individuals it takes to comprise a low-income population. Since the purpose of defining the population is to determine whether environmental and human health impacts are disproportionately high, the density used for minorities (50 percent or greater) was used for low-income. In this way, if an impact of equal intensity is distributed over an area that is more than 50 percent low-income, then the low-income population would have received the preponderance of impact, warranting further study to determine if the impact is disproportionately high and adverse. There is no Census Block Group in the study area with 50 percent or more low-income population.

While the distribution of the low-income population may have changed since 1990, it is not likely that it increased in the study area. This is because continuously rising housing costs in this area make it more likely that low-income residents have tended to locate elsewhere.



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Distribution of the Minority Population Within the Study Area

Figure No. 4.1

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5 IMPACT ANALYSIS

■

5.1 No Action Alternative

1.1.1 High and Adverse (i.e., Significant) Impacts Identified in Other Expertise Reports and Distribution on the Minority and Low-income Population

The other expertise reports developed as a part of this project revealed no significant impacts after mitigation. Consequently, this alternative would not result in high and adverse environmental or human health impacts. With no high and adverse impacts, there can be no disproportionately high and adverse impact on the minority or low-income population.

1.1.1 Denial of Benefits

There is no indication that this alternative denies equal transportation benefits to any segment of the population. This conclusion is based principally on the fact that unequal provision of access and mobility was not raised as an issue in the public forums. Secondly, low-cost transit service is available in many parts of the area, connecting major shopping and employment centers with residential areas.

■

5.2 Alternative 1: HCT/TDM Emphasis

1.1.1 High and Adverse (i.e., Significant) Impacts Identified in Other Expertise Reports Operational Impacts

At the level of analysis performed, no significant impacts (i.e., high and adverse environmental or human health impacts) were reported in any of the expertise reports prepared for this project. Absent a high and adverse effect, and absent a sufficient concentration of minority and low-income individuals in the impact zone(s) to be considered a "population" as this is defined in the FHWA Order, there is no potential for disproportionately high and adverse effects on the minority and low-income populations.

■

5.3 Alternative 2: Transit Emphasis

1.1.1 High and Adverse (i.e., Significant) Impacts Identified in Other Expertise Reports

At the level of analysis performed, no significant impacts (i.e., high and adverse environmental or human health impacts) were reported in any of the expertise reports prepared for this project. Absent a high and adverse effect, and absent a sufficient concentration of minority and low-income individuals in the impact zone(s) to be considered a "population" as this is defined in the FHWA Order, there is no potential for disproportionately high and adverse effects on the minority and low-income populations.

It might be argued that, since low-cost transit favors the low-income population, that this alternative should be highly rated on the basis of environmental justice. While the decisionmaker may have the discretion to take this into account during selection of an alternative for implementation, neither the Executive Order nor the FHWA Order say anything about favoring an alternative if it disproportionately benefits the minority or low-income population. Rather, the orders indicate that it is Federal government policy to avoid disproportionately high and adverse effects on the minority or low-income population.

■

5.4 Alternative 3: Mixed Mode

1.1.1 High and Adverse (i.e., Significant) Impacts Identified in Other Expertise Reports

At the level of analysis performed, no significant impacts (i.e., high and adverse environmental or human health impacts) were reported in any of the expertise reports prepared for this project. Absent a high and adverse effect, and absent a sufficient concentration of minority and low-income individuals in the impact zone(s) to be considered a "population" as this is defined in the FHWA Order, there is no potential for disproportionately high and adverse effects on the minority and low-income populations.

■

5.5 Alternative 4: Roadway Capacity Emphasis

1.1.1 High and Adverse (i.e., Significant) Impacts Identified in Other Expertise Reports

At the level of analysis performed, no significant impacts (i.e., high and adverse environmental or human health impacts) were reported in any of the expertise reports prepared for this project. Absent a high and adverse effect, and absent a sufficient concentration of minority and low-income individuals in the impact zone(s) to be considered a "population" as this is defined in the FHWA Order, there is no potential for disproportionately high and adverse effects on the minority and low-income populations.

6 CONCLUSION

As stated in Section 3.3, for purposes of this analysis, significant adverse impacts are considered synonymous with high and adverse impacts as described in EO 12898 and FHWA Order 6640.23. As reported in the other expertise reports prepared for the I-405 Corridor Program, at the level of analysis performed, no significant adverse impacts are expected as a result of this project. Consequently none of the impacts of this project can be described as having a high and adverse impact in the context of EO 12898 or FHWA Order 6640.23. As there are no high and adverse impacts as a result of this project, this analysis therefore concludes that no high and adverse human health or environmental effects of the project are expected to fall disproportionately on minority or low-income populations. The project is therefore consistent with the policy established in EO 12898 and FHWA Order 6640.23.

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8 ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisors Council on Historic Preservation
ADA	Americans with Disabilities Act
ADT	Average daily traffic
AIRFA	American Indian Religious Freedom Act
APA	Aquifer Protection Area
APE	Area of potential effects
ARPA	Archaeological Resources Protection Act
B.P.	Before present
Bgs	Below ground surface
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe Railroad
CARA	Critical aquifer recharge area
CBD	Central business district
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
Cfr	Calculated fixed radius
COD	Chemical oxygen demand
CSCSL	Confirmed or Suspected Contaminated Sites List
CWA	Clean Water Act (Section 404)
DDES	King County Department of Development and Environmental Services
DEA	David Evans & Associates
DNR	Department of Natural Resources
DOH	Department of Health
Ecology	Washington State Department of Ecology
EIS	Environmental impact statement
EO	Executive Order
ESA	Endangered Species Act
ESA	Environmental site assessment
FAZ	Forecast and analysis zone
FHWA	Federal Highway Administration
FIRES	Finance, insurance, real estate, and other services
FTA	Federal Transit Administration
GIS	Geographic Information System
GMA	Groundwater Management Area
GP	General purpose
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HCT	High-capacity transit
HOT	High-occupancy/toll
HOV	High-occupancy vehicle
HPA	High probability area (archaeologically sensitive area)

I/C	Interchange
ICR	Independent Cleanup Reports
ITS	Intelligent transportation system
IWG	Interagency Working Group on Environmental Justice
LQG	Large quantity generator
MOA	Memorandum of Understanding
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act of 1969
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act of 1966, as amended
NMFS	National Marine Fisheries Service
NPL	National Priority List
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
OUM	Office of Urban Mobility (WSDOT)
PAHs	Polynuclear aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PSRC	Puget Sound Regional Council
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
ROW	Right-of-way
SCA	Sanitary Control Area
SCS	Soil Conservation Service
Section 106	National Historic Preservation Act, Section 106
Section 4(f)	Department of Transportation Act (23 USC, Section 138 – formerly 49 USC 1653(f))
SHPO	State Historic Preservation Officer
SPCC	Spill Prevention, Countermeasure, and Control
SQG	Small quantity generator
SSA	Sole source aquifer
TAZ	Transportation analysis zone
TCP	Traditional cultural property
TDM	Transportation demand management
THPO	Tribal Historical Preservation Officer
TSD	Treatment, storage, and disposal
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
WAC	Washington Administrative Code
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WRHP	Washington Register of Historic Places
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WTCU	Wholesale trade, transportation, communication, and utilities

9 APPENDIXES

A. Major Element Descriptions

B. Alternatives and Projects Matrix

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APPENDIX A
Major Elements of Alternatives

Appendix A
I-405 CORRIDOR PROGRAM
MAJOR ELEMENTS OF ALTERNATIVES

1. TRANSPORTATION DEMAND MANAGEMENT

TDM Package Core Assumptions

- Existing TDM programs will continue (public & private sector)
- Existing public TDM programs will be expanded to meet new market demand
- Implementation of trip reduction targets will be supported by new interlocal or sub-regional agreements
- Strategies are flexible, monitored and adjusted as needed over time (includes tracking trends for Internet, e-commerce)
- Funding is provided for demonstration projects, plus some ongoing funding for new TDM strategies found effective

Focus of TDM Package

SOV and other trip reduction through the use of:

- Incentives
- Increasing access to alternative modes
- Public information, education and promotion
- Land use strategies

Strategies in the TDM Package

VANPOOLING

- Maximize vanpooling in the corridor (minimum of a five-fold increase)
  - Intensive marketing of vanpooling, including start-up subsidies
  - Use of new “value-added" incentives (e.g., frequent flyer miles for vanpoolers)
  - Creation of a revolving no-interest loan fund for purchasing vans
  - 50% fare subsidy
  - Provide sufficient infrastructure (e.g., small park & ride lots)
  - Owner-operated vanpool promotion

PUBLIC INFORMATION, EDUCATION & PROMOTION PROGRAMS

- Establish ongoing public education and awareness program specific to the corridor (focus on issues and transportation alternatives)
- Provide traveler information system(s), including interactive ridematch and transit information
- Provide personalized trip planning assistance, including for transit

Strategies in the TDM Package
EMPLOYER-BASED PROGRAMS • Increase work choices Telecommuting, flextime, compressed work schedules, multiple shifts Proximate commuting (assigning employees to work sites close to home) Incentives to employers to offer work choices (e.g., tax credits) • For current commuter trip reduction program – new incentives and resources to help CTR-affected employers obtain CTR goals (e.g., grants, tax credits, staff support) • Expanded CTR-like program aimed at smaller employers plus those larger ones not affected by CTR laws (non-regulatory, voluntary based) • Support development and core operations of transportation management associations (TMA) • Parking cash-out program incentives and financing
LAND USE AS TDM Compact, mixed-use, non-motorized and transit friendly (re)development in target areas (urban centers, suburban clusters, key arterials, transit station areas, transit centers, park-and-ride lots) • Transit-oriented development (TOD) • Code changes, streamlining processes, local connectivity retrofitting projects to support (re)development • Programs (code assistance, design review support) to help jurisdictions and developers implement compact (re)development • New parking management programs
OTHER MISCELLANEOUS TDM PROGRAMS Innovative transit and vanpool fare media, incentives, demonstrations, matching funds, etc. [e.g., area-wide "Smart Card" (FlexPass) programs for Eastgate, downtown Bellevue, north Renton industrial area, Bothell business parks, Redmond, downtown Kirkland, Tukwila] • Non-commute trips TDM programs (research and demonstrations) • Other miscellaneous incentives (local and state tax credit programs, developer incentives)

2. EXPANDED TDM PACKAGE

Overview

This major element will include the range of regional pricing actions being evaluated by the PSRC. The potential impacts of the following actions will be examined in the context of the I-405 Corridor:

- Region-wide congestion pricing (RCP);
- Fuel taxes (revenue = RCP);
- Fuel taxes (revenue = 50% RCP);

- Mileage charge (revenue = RCP);
- Parking charges;
- High occupancy toll lanes.

2. NEW TRANSIT EXPANSION BY 50% WITHIN STUDY AREA

Transit service levels would be increased by 25% compared to the current King County 6-year plan, assumed to be in place by 2007.

Transit service levels would be increased by 50% compared to the current King County 6-year plan, assumed to be in place by 2007.

3. DOUBLE TRANSIT SERVICE WITHIN STUDY AREA

Overview

Transit service levels would be doubled compared to the current King County 6-year plan, assumed to be in place by 2007. The effects of I-695 on short-term transit service have not been assumed. Transit service coverage and design would also be revised to more closely match travel patterns within the study area. These revisions could include more center-to-center movements, connections between neighborhoods and centers, and development of an appropriate 'grid' transit system within the study area.

4. PHYSICALLY SEPARATED HIGH-CAPACITY TRANSIT (HCT)

Description

A high-capacity transit solution would be designed for the I-405 corridor. The exact technology of this solution would be determined in later studies, but could include busway, light rail, monorail, or similar mode that could operate at speeds of up to 70 mph. The HCT alignment would generally follow the I-405, SR 520 and I-90 freeway corridors in existing freeway, arterial, or railroad right-of-way. The key characteristic of this solution would be that it would have a dedicated alignment, removing it from congestion-induced delays. Bus service would be reconfigured to provide maximum accessibility to the HCT system.

Alternatives 1 and 2 assume a full-scale HCT within the corridor, likely using some form of rail technology. Alternative 3 assumes a bus rapid transit (BRT) concept, building on the existing freeway HOV system.

High Capacity Transit		
Jurisdiction	**Project ID***	**Projects**
Tukwila & Renton	T.HCT-1	HCT- SeaTac to Renton CBD
Renton	T.HCT-2	HCT-Renton CBD to NE 44th (Port Quendall)
Renton, Newcastle & Bellevue	T.HCT-3	HCT- NE 44th (Port Quendall) to Factoria
Bell & Issaquah	T.HCT-4	HCT – Factoria to Issaquah

High Capacity Transit		
Bellevue	T.HCT-5	HCT – Factoria to Downtown Bellevue
Bell & Redmond	T.HCT-6	HCT – Bellevue to Redmond
Bell & Kirkland	T.HCT-7	HCT – Bellevue to Totem Lake
Kirk, King Co. & Woodinville	T.HCT-8	HCT – Totem Lake to Bothell
Bothell & Sno Co.	T.HCT-9	HCT – Bothell to Lynnwood

High Capacity Transit Stations	
Sea-Tac	Sea-Tac
Tukwila	Southcenter
Tukwila & Renton	Tukwila (Longacres)
Renton	Downtown Renton
Renton	North Renton
Renton	Port Quendall
Bellevue	Factoria
Bellevue	Bellevue Transit Center
Bellevue	Bellevue Library
Bell & Kirk	SR 520/Northup Way
Kirkland	Downtown Kirkland (NE 85th Street)
Kirkland	Totem Lake
Woodinville	NE 145th Street
Woodinville	Woodinville
Bothell	NE 195th Street
Bothell	Canyon Park
Snohomish County	164th Street SW (Ash Way)
Bellevue	Eastgate
Bellevue	Lakemont
Issaquah	Issaquah
Bellevue	132nd Avenue NE
Bellevue	148th Avenue NE
Redmond	Overlake (NE 40th Street)
Redmond	Redmond/Town Center
Redmond	Bear Creek
Mercer Island	Mercer Island

6. ADD ARTERIAL HOV AND TRANSIT PRIORITY

Overview

Create lanes, intersection queue jumps and signals that provide priority to HOVs and transit on major arterials in the study area.

Arterial HOV		
Bellevue	R.HOV-36	Coal Creek Pkwy I-405 to Forest Drive
Bellevue	R.HOV-37	NE 8th Street I-405 to 120th Ave NE
Kirkland, Redmond	R.HOV-38	NE 85th St Kirkland Way to 148th Ave NE
Kirkland	R.HOV-39	NE 116th 98th Ave NE to 124th Ave NE
Kirkland	R.HOV-40	NE 124th 100th Ave NE to 132 Ave NE
Bothell	R.HOV-41	SR 527 From SE 228th St to SR 524
Renton	R.HOV-43	SR 169 - SR 405 to Riverview Park vicinity - HOV/Transit Preferential treatment.
Renton	R.HOV-44	SW 27th St Corridor in Renton - Oaksdale Ave to SR 167
Redmond	R.HOV-47	Avondale Rd from Novelty Hill Road to Avondale Way Construct SB HOV lane
Renton, King Co	R.HOV-48	SW 43 St (SR 167 to 140 Ave SE)
Renton	R.HOV-49	Logan Ave N / N 6 St (S 3 St to Park Dr)
Renton	R.HOV-51	Park Dr - Sunset Blvd (Garden Ave to Duvall Ave NE)
Kenmore	R.HOV-53	68 Ave NE (Smds Rd to SR 522) - Construct NB HOV lane
Redmond	R.HOV-55	Willows Rd (Redmond Wy to NE 124 St)
Kirkland, Bell	R.HOV-56	Lake Wa Blvd (SR 520 to Yarrow Bay) - SB HOV lane
Kirkland	R.HOV-57	NE 68 St/NE 72 Pl (I-4405 Vicinity) – Que Bypass
Bellevue	R.HOV-60	Bellevue Way - I-90 to South Bellevue Park and Ride

7. HOV EXPRESS ON I-405 WITH DIRECT ACCESS RAMPS

Overview

Complete the series of ramps connecting arterials and freeways directly to HOV lanes on I-405. This allows carpools, vanpools and buses to use the HOV lanes without weaving across other traffic. HOV direct access ramps have already been designed by Sound Transit in downtown Bellevue and Kirkland, and design studies are starting for HOV ramps in downtown Renton.

HOV Interchange Ramps (Direct Access)		
Tukwila	R.HOV-25	SR 5 I/C @ Tukwila Fwy to Fwy HOV ramps,
Renton	R.HOV-26	SR 167 I/C Fwy to Fwy HOV ramps,
Bellevue	R.HOV-27	SR 90 I/C Fwy to Fwy HOV ramps,
Bellevue	R.HOV-28	SR 520 Fwy to Fwy HOV ramps,
Bothell	R.HOV-29	SR 522 Fwy to Fwy HOV Ramps
Sno. Co.	R.HOV-30	SR 5 I/C @ Swamp Creek Fwy HOV ramps.
Kirkland	R.HOV-61	NE 85th
ST	R.HOV-101	I-405 @ Lind – HOV Direct Access
Newcastle	R:HOV-65	112th St SE (In-Line Station)

Committed HOV Projects		
Bellevue	HOV-01	I-405 at NE 4th/6th/8th (Bellevue)/Construct new HOV direct access at NE 6th, Improve arterial capacity at NE 4th/8th interchanges
Bellevue	HOV-02	I-90 (Eastgate)/New I-90 HOV direct access connection to P&R
Renton	R.HOV-32	Between Sunset and SR-900 /Park Ave interchange in Renton
ST	R:HOV-66	I-405 at 128th St/HOV direct access improvements
Renton	R.HOV-33	NE 44th I/C - HOV Direct Access and Arterial Improvements(Assumes Port Quendall)
WSDOT	HOV-14	I-405 (I-5 Swamp Creek to SR 527)/Construct NB and SB HOV lanes total 6 lanes
Bothell	R.HOV-62	SR 522 Campus Access
Bothell	R.HOV-63	SR 527 Flyer Stop
ST	HOV-102	Woodinville Arterial Enhancements/HOV arterial enhancements

8. ADD PARK-AND-RIDE CAPACITY TO MEET DEMAND

Overview

Provides additional park-and-ride capacity at existing locations and creates selected new lots based on forecasted transit and carpool demand. The locations initially identified for expansion are listed below. These locations will be refined during the evaluation process.

Park and Rides		
Renton	T.PR-3	Renton East Highlands new Park and Ride
Tukwila & Renton	T.PR-6	Tukwila Commuter Rail (Longacres)
King County	T.PR-5	140th Ave SE and Petrovitsky Rd Vicinity
King County	T.PR-8	SR 169 and 140th WY SE
King County	T.PR-9	Petrovitsky Rd and 157th Ave SE
King County	T.PR-10	140th Ave SE and SE 192nd
King County	T.PR-11	SR 515 and SE 208th
Kent & Renton	T.PR-12	SR 167 and SW 43rd
Kent & Renton	T.PR-13	SR 167 and 84th Ave
Redmond	T.PR-17	Willows Rd @ NE 100th
Redmond	T.PR-18	SR 202 @ NE 100th
Bellevue & Kirkland	T.PR-20	South Kirkland
Redmond	T.PR-21	Overlake
Bellevue	T.PR-22	South Bellevue
Bellevue	T.PR-23	Newport (112th Ave. SE)
King County	T.PR-24	NE 160th/Brickyard Rd
Bothell	T.PR-25	Canyon Park (I-405 and SR 527)
Tukwila	T.PR-30	Tukwila
Kirkland	T.PR-31	Houghton
Kirkland	T.PR-32	Kingsgate
Medina	T.PR-33	Evergreen Point
Bellevue	T.PR-34	Wilburton
King County	T.PR-35	Lakemont
Redmond	T.PR-36	Redmond
Redmond	T.PR-37	Bear Creek
Bothell	T.PR-38	Bothell
Kenmore	T.PR-39	Northshore
Kenmore	T.PR-40	Kenmore
Woodinville	T.PR-41	Woodinville
Mercer Island	T.PR-42	Mercer Island
Bellevue	T.PR-43	Eastgate

9. ADD TRANSIT CENTER CAPACITY TO MEET DEMAND

Overview

Expand existing transit centers and create new transit centers to accommodate increased transit service. The specific locations for expansion and new centers will be identified during the evaluation process. Alternatives 1, 2, and 3 will require transit center capacity to accommodate a significant increase in transit service, at designated HCT stations, and at feeder bus connections. A partial listing is below.

Transit Center Capacity		
Renton	T.TC-6	Downtown Renton
Bellevue	T.TC-8	Downtown Bellevue
Redmond	T.TC-9	Overlake
Redmond	T.TC-10	Redmond/Town Center
Kirkland	T.TC-12	Downtown Kirkland
Kirkland	T.TC-14	Totem Lake

10. BASIC I-405 IMPROVEMENTS

Overview

This major element fixes existing bottlenecks and locations with safety deficiencies along I-405.

Basic I-405 Improvement Projects		
Jurisdiction	**Project ID***	**Projects**
Renton	R.BI.1	SR 167 Interchange - Direct Connection with auxiliary lane SB SR 169 to SR 167
Kirkland	R.BI.2	Continue NB climbing Lane from NE 70th to NE 85th and continue as auxiliary Lane to NE 116th
Kirkland	R.BI.3	SB auxiliary Lane NE 124th to NE 85th
Bellevue	R.BI.4	I-90 / Coal Creek Interchange
Bothell, King Co, Kirkland	R.BI.5	SB SR 522 to 124th continue climbing lane as an auxiliary lane
Bothell	R.BI.6	NB auxiliary lane SR 522 to SR 527
Renton	R.BI.7	Kennydale Hill climbing lane - SR 900 to 44th - NB 900 to 30th, SB 44th - 30th
Bellevue	R.BI.8	I-90 to Bellevue SB HOV direct connection to I-90 west
Bellevue	R.BI.9	NB auxiliary lane I-90 to NE 8th
Bellevue	R.BI.10	Increase SR 405 to Eastbound SR 520 Ramp capacity
Renton	R.BI.14	NB Auxiliary Lane I-5 to SR 167
Various	R.FR-24	Improve interchange geometrics at all major truck routes (WB-20 Design Criteria)
WSDOT	R-55	I-405/SR 167 Interchange/Construct new southbound I-405-to-southbound SR 167 ramp modification.

11. ADD 2 GENERAL PURPOSE LANES EACH DIRECTION ON I-405

Add up to 2 general purpose lanes to I-405 through widening of the existing freeway. A design option is to create collector-distributor lanes in selected corridor segments (See Element 12).

12. PROVIDE COLLECTOR DISTRIBUTOR LANES ON I-405

Overview

Collector- Distributor lanes provide more time for traffic to safely enter or exit from roadway by providing lanes removed from general travel. This is being considered as a design option to handle the addition of one or two general purpose lanes in each direction along I-405 in certain sections. Collector-Distributor lanes have been included as parts of other elements.

13. ADD TWO EXPRESS LANES EACH DIRECTION ON I-405

Overview

This element consists of a four-lane express facility designed to operate with limited interchanges along the length of I-405. The express lanes would be physically separated from the rest of I-405 through the use of barriers. Certain segments could operate within the median of I-405, while other segments would need to be elevated, in tunnel, or on separate alignments.

The express lanes could operate as a general purpose facility or as a managed facility, such as a 'High Occupancy Toll (i.e. HOT) lane. Certain users could be allowed to use the express lanes for free, while other users could be allowed to 'buy-in' to available capacity. The capacity would be priced depending upon demand.

Express Lanes – 2 Lanes each Direction between Major Interchanges		
Jurisdiction	**Project ID**	**Projects**
Tukwila, Renton	R.TC-20	Add Express lanes - SR 5 Tukwila to SR 167
Renton	R.TC-21	Add Express lanes - SR 167 to SR 900 north Renton I/C
Renton, Newcastle, Bellevue	R.TC-22	Add Express lanes -SR 900 North Renton I/C to SR 90
Bellevue	R.TC-23	Add Express lanes - SR 90 to SR 520
Bellevue, Kirkland	R.TC-24	Add Express lanes - SR 520 to NE 70th
Kirkland	R.TC-25	Add Express lanes - NE 70th to NE 124th
Kirkland, King County, Bothell	R.TC-26	Add Express lanes - NE 124th to SR 522
Bothell	R.TC-27	Add Express lanes - SR 522 to SR 527
Bothell and Snohomish Co.	R.TC-29	SR 527 to vicinity of Damson Road
Renton	R.TC-28	Add Express lanes- on SR 167 north of 180th up to I-405

Express Lanes –Access Locations		
Snohomish Co	R.TC-30	Northern end to Express lanes - Between SR 527 and I-5
King Co/Kirkland	R.TC-31	Slip Ramp- South of NE 160th St
Kirkland	R.TC-32	Slip Ramp- South of NE 70th St
Bellevue, Newcastle	R.TC-33	Slip Ramp- South of Coal Creek Pkwy
Renton	R.TC-34	Interchange access location- SR 167

14. WIDEN SR 167 BY 1 LANE EACH DIRECTION TO KENT (STUDY AREA BOUNDARY)

Overview

SR 167 would be widened by one lane in each direction to accommodate additional demands due to growing demands and the effects of improvements at the I-405/SR 167 interchange. The widening is assumed to extend at least to the study area boundary in Kent. Alternative 3 will consider the potential to add a total of two lanes in each direction to SR 167 within 1 mile of I-405, due to the substantial capacity additions assumed for I-405. This element does not presume that SR 167 would be redesignated as I-405, although each of these improvements would be compatible with such a redesignation if it occurs.

16. IMPROVE CONNECTING FREEWAY CAPACITY TO I-405

Overview

Enhance the capacity of connecting freeways by one lane in each direction (for a distance of approximately ½ to 1 mile on both sides of I-405) to avoid bottlenecks at the connections to I-405.

Connecting Freeway Capacity (One Lane, Each Direction)		
Jurisdiction	**Project ID**	**Projects**
Tukwila	R.CF.1	SR 518 I-405 to SR 99/Airport Access
Bellevue	R.CF.3	I-90 South Bellevue to Eastgate
Bellevue	R.CF.4	SR 520 Bellevue Way to 148th Avenue NE
Bothell, Woodinville	R.CF.5	SR 522 Bothell to NE 195th
Snohomish Co, Lynnwood	R.CF.6	SR 525 I-405 to SR 99
Renton, Kent	R.CF.8	SR 167 I-405 to Study Area Boundary
Tukwila	R.CF.9	I-5 at Tukwila
Lynnwood	R.CF.10	I-5 at Swamp Creek – 196th to 164th

17. IMPLEMENT PLANNED ARTERIAL IMPROVEMENTS

Overview

This major element involves the implementation of several arterial improvements called for in local agency plans and the Eastside Transportation Program (ETP). The ETP has been an ongoing process by regional, county and local governments to coordinate transportation planning and funding in East King County. Many of the ETP projects have already been examined in detail by the agencies involved and have been determined to be effective in addressing a variety of transportation issues.

Eastside Transportation Projects - Committed Projects		
Jurisdiction	**Project ID**	**Projects**
Bellevue	R-08	NE 29th Pl (148th Ave NE to NE 24th St)/Construct new 2-lane road
Bellevue	R-101	150th Ave SE---Widen to 7 lanes from SE 36th to SE 38th; add turn lanes
KCDOT	R-40	Juanita-Woodinville Way (NE 145 St to 112th Ave NE) Widen to 5 lanes + CGS, walkway/pathway
KCDOT	R-47	NE 124 St (Willows Rd to SR 202)--- Widen to 4/5 lanes + CGS, bike facilities; traffic signal.
Kirkland	R-21	NE 120 St (Slater Ave to 124 Ave NE)--- Construct new 3-lane roadway with ped/bike facilities
Redmond	R-111	Willows Rd Corridor Improvements-- Channelization of Willows Rd/Redmond Way intersection and widening of Willows Rd from NE 116th to NE 124th
Redmond	R-26	NE 90 St (Willows Rd to SR 202)--- Construct new 4/5 lanes + bike facilities
Redmond	R-28	West Lake Sammamish Parkway (Leary Way to Bel-Red Rd)--- Widen to 4/5 lanes + CGS, bike lanes
Renton	R-36	Oakesdale Ave SW (SW 31st to SW 16th)--- Construct new 5 lane roadway with CGS
Snohomish Co.	R-10	SR 524 (24 St SW to SR 527)--- Widen to 4/5 lanes including sidewalks, bike lanes
Snohomish Co.	R-117	39th Ave SE Realignment at SR 524 and York Rd--- Construct 4-way intersection to replace 2 offset intersections
Bothell, Snohomish Co.	R.AC-21	120th NE/39th SE - NE 95th to Maltby Rd - 4/5 lanes including new connection
Woodinville	R-51	Woodinville-Snohomish Rd/140 Ave NE (NE 175 St to SR 522)--- Widen to 4/5 lanes + CGS, bike lanes
Woodinville/ WSDOT	R-25	SR 202 Corridor Improvements(East Lake Sammamish Pkwy to Sahalee Way)--- Widen to 3/5 lanes; intersection improvements with bike/ped facilities
KCDOT	R-39	140 Ave SE (SR 169 to SE 208 St)--- Widen to 5 lanes SR 169 to SE 196 St, widen for turn channels on SE 196. Combines 2 King County CIP projects. A major North-South arterial which serves the Soos Creek Plateau and Fairwood.

Eastside Transportation Projects - Planned Projects		
Jurisdiction	**ETP #**	**Projects**
Bellevue	R.PA-2	148 Ave SE (SE 24 St to SE 28 St) New SB lane from SE 24 St to the WB I-90 on-ramp (ETP 203)
Bothell	R.PA-3	SR 522 Multimodal Corridor Project--- Widen SR-522 mostly within existing ROW to provide transit lanes, safety improvements, consolidated driveways & left turn lanes; and sidewalks. (ETP R-107)
Bothell	R.PA-4	SR 524 (SR 527 to Bothell City Limit)--- Widen to 5 lanes + CGS, bike facilities (class III) (ETP R-11)
KCDOT	R.PA-5	SE 212 Way/SE 208 St (SR 167 to Benson Rd/SR 515)--- Widen to 6 lanes + bike facilities, Transit/HOV preferential treatment, turn channels. (ETP R-46)
KCDOT	R.PA-8	NE 124/128 St (SR 202 to Avondale Rd)--- Widen to 4/5 lanes including bike & equestrian facilities (ETP 164)
KCDOT	R.PA-10	NE 132 St Extension (132 Ave NE to Willows Rd Ext.)---- Construct new 3 lane arterial with CGS, bike lanes (ETP 61)
Kenmore/KCDOT	R.PA-11	68 Ave NE (Simonds Rd to SR 522)--- Construct NB HOV lane total of 5/6 lanes (ETP 22)
Kirkland	R.PA-12	124 Ave NE (NE 85 St to Slater Rd NE)---- Widen to 3 lanes (s. of NE 116th St, 5 lanes n. of NE 116th St with ped/bike facilities (ETP R-23)
Kirkland	R.PA-13	NE 132 St (100 Ave NE to 116 Way NE)--- Widen to 3 lanes + CGS, Bike lane (ETP R-124)
Kirkland	R.PA-14	NE 100 St (117 Ave NE to Slater Ave) --- Construct bike/pedestrian/emergency Vehicle overpass across I-405 (ETP 309)
Newcastle	R.PA-15	Coal Creek Pkwy (SE 72 St to Renton City Limits)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signals (ETP R-24)
Redmond	R.PA-16	Redmond 148th Ave NE Corridor - 3 projects--- Turn lane and channelization improvements along corridor – BROTS; (ETP R-112)
Redmond	R.PA-17	Bear Creek Pkwy--- Construct new 162nd Ave NE arterial and new 72nd St arterial w/ bike/ped and CSG; widen Bear Creek Pkwy (ETP R-110)
Redmond	R.PA-18	Union Hill Rd (Avondale Rd to 196 Ave NE)--- Widen to 4/5 lanes with bike facilities (ETP R-27)
Renton	R.PA-19	Duvall Ave NE (NE 4 St to NE 25 Court -City Limits)--- Widen to 5 lanes + CGS, bikeway (ETP R-31)
Renton	R.PA-20	Oakesdale Ave SW (Monster Rd to SR 900) Replace Monster Rd Bridge; widen to 4/5 lanes +Bike Lanes + CGS (ETP R-35)
Renton	R.PA-21	Rainier Ave / Grady Way (intersection)-- Grade separation (ETP R-33)

Eastside Transportation Projects - Planned Projects		
Renton	R.PA-22	SW Grady Way (SR 167 to SR 515)-- Rechannelize and modify signals for a continuous eastbound lane (ETP R-37)
Renton	R.PA-23	SR 167 at East Valley Road--- New southbound off-ramp and signalization at East Valley Road (ETP 255)
Renton/ KCDOT	R.PA-24	Soos Creek Regional Links --- Placeholder for Trans-Valley Study (ETP R-115)
Woodinville	R.PA-25	SR 522 Interchange Package(SR 522/SR 202 &SR522/195th St))-- Access improvements and new freeway ramps (ETP R-53) (See R.AC-30)
Woodinville	R.PA-26	SR202 Corridor Package (SR202/148th Ave & SR202/127th Place)--- Intersection improvements (ETP R-54)
WSDOT	R.PA-27	SR 520/SR 202 Interchange-- Complete interchange by constructing a new ramp and thru lane on 202 to SR 520 (ETP R-29)
WSDOT	R.PA-28	SR 202 / 140 Place NE (NE 124 St to NE 175 St)--- Widen 4/5 lanes (ETP R-43) (See R.AC-17, 18)

18. EXPAND CAPACITY ON NORTH-SOUTH ARTERIALS

Overview

This element expands arterial capacity to provide connected north-south travel. This element would facilitate vehicular movement without requiring as many trips along I-405.

North-South Arterial Projects		
King Co	R.AC-2	138th Ave - Petrovitsky Rd to SR 169- Add 1 lane
King Co, Renton	R.AC-3	138th Ave SE - Construct roadway link to 4/5 lanes- SR 169 to NE 4th St
Redmond	R.AC-15	Willows Rd- NE 90th St to NE 124th St- Add 1 lane each direction
King Co, Woodinville	R.AC-16	Willows Rd- NE 124th St to NE 145th St- construct new facility -4/5 lanes
Woodinville	R.AC-17	SR 202- NE 145th St to SR 522- widen to 5 lanes
Redmond, King County, Woodinville	R.AC-18	SR 202 - NE 90th to NE 145th
Bothell, Snohomish County, Mill Creek	R.AC-20	SR 527/Bothell Everett Hwy - SR 522 to SR 524 - Widen by 1 lane each direction
Bothell, Woodinville	R.AC-30	SR 202 connection across SR 522 to 120th
Tukwila	R.AC-35	SR 181- S 180th to S 200th
Tukwila	R.AC-36	SR 181- 144th to Strander Blvd.
Tukwila	R.AC-37	Southcenter Blvd - Tukwila Pky to Strander Blvd

19. UPGRADE ARTERIAL CONNECTIONS TO I-405

Overview

This element provides for upgrading arterial connections to I-405. These projects are intended to improve operations at on- and off-ramps as well as on the arterials themselves. An additional lane in each direction was assumed for these arterials, although further analysis may show that similar benefits could be achieved through selected intersection improvements in some cases.

Arterial Interchange Improvements (One Lane Each Direction)		
Jurisdiction	**Project ID**	**Projects**
Tukwila	R.IC-3	SR 181 West Valley Highway/ Interurban
Renton	R.IC-4	SR 169 Maple Valley Hwy SR 900 to NE 5th
Bellevue	R.IC-6	Coal Creek Pkwy I-405 to Factoria Blvd.
Kirkland, Redmond	R.IC-8	NE 85th St-Kirkland Way to 124th
Kirkland	R.IC-9	NE 116th- 114th Ave NE to 124th Ave NE
Kirkland	R.IC-10	NE 124th- 113th Ave NE to 124th Ave NE
Kirkland	R.IC-26	NE 132nd - 113th to 124th Ave NE
Bothell	R.IC-11	SR 527-228th to SR 524
Kirkland, King Co	R.IC-14	New half diamond interchange to/from north at NE 132nd St
Bothell	R.IC-21	New SR 405 Interchange at 240th Street SE(Bothell)
Bothell	R.IC-24	NE 160th Street-112th Ave to Juanita/Woodinville Way

21. CORRIDOR PEDESTRIAN AND BICYCLE IMPROVEMENTS

Overview

Non-motorized improvements throughout the corridor provide needed connections between modes (e.g. pedestrian overpasses from park and rides to freeway bus stops) and allow for commutes or trips to be made by walking or biking. Alternative 3 will exclude all of the 'long-distance' trails (identified below under the heading Pedestrian/Bicycle Connections) from this element. These improvements need further refinement in the context of other major elements in the alternatives.

Pedestrian/Bicycle (I-405 Crossings)		
Bellevue	NM. CR-1	Lk Washington Blvd/112th Ave. SE - crossing I-405 from 106th Ave. SE to 112th Place SE - Add sidewalks
Bothell	NM. CR-2	Fitzgerald Rd/27th Ave. - crossing I-405 from 228th St. SE to 240th St. SE - Add ped/bike facility
King County	NM. CR-3	SR-524 (Filbert Road) - crossing I-405 from North Rd to Locust Way - Add sidewalk/paved shoulder
King County	NM. CR-4	Damson Road - crossing I-405 from 192nd St SW to Logan Rd - Add sidewalk/paved shoulder
Renton	NM. CR-5	NE Park Drive - crossing I-405 from SR-900/Sunset Blvd to Lake Wash Blvd - Add sidewalk/paved shoulder
Renton	NM. CR-6	Jackson SW/Longacres Dr SW - crossing I-405 from S. Longacres Way to Monster Rd SW - Add sidewalk/paved shoulder
Bothell	NM. CR-7	Connection between Sammamish River Trail and North Creek Trail - between SR-522 and NE 195th St. - Add ped/bike over-crossing of I-405
Bothell	NM. CR-8	SR-527 - crossing I-405 from 220th St SE to 228th St SE - ped/bike facility

Pedestrian/Bicycle Connections		
Bellevue	NM.P&B-4	Lake Washington Blvd - SR 405 to SE 60th - Add ped/bike facilities
Bellevue, Kirkland	NM.P&B-2	BNSF Right of Way - SE 8th to Totem Lake - Add ped/bike facility.
Bellevue, Newcastle, Renton	NM.P&B-6	Lake Washington Blvd/112th - SE 60th to May Creek I/C - Add ped/bike facility
Bothell	NM.P&B-5	North Creek Trail Link - 240th to 232nd - Add ped/bike trail.
Renton	NM. P&B 14	Cedar River Trail S. Extension - I-405 to Burnett Ave - Add ped/bike facilities (ETP NM-17)
Renton	NM. P&B 15	Cedar River Trail/Lake Washington Blvd Connector - Cedar River Trail to Lk Wash Blvd Loop - Add ped/bike facilities (ETP NM-15)
Renton	NM. P&B 16	Cedar-Duwamish Trail Connection - I-405 to Interurban Ave. S. - Add ped/bike facilities
Renton	NM. P&B 17	I-405/SR-167 trail connection - Lind Ave. SE to Talbot Rd S. - Add trail connection
Renton/Tukwila	NM. P&B 18	I-405/1-5 - via or around I-405/I-5 interchange - Add ped/bike facilities
Tukwila	NM. P&B 19	SR-181/W. Valley Hwy - crossing I-405 from Strander Blvd to Fort Dent Way - Add bike lanes

22. I-405 CORRIDOR INTELLIGENT TRANSPORTATION SYSTEM ENHANCEMENTS

Overview

This major element provides ITS enhancements to facilitate more reliable traffic flow.

I-405 Corridor ITS Enhancements		
Jurisdiction	**Project ID**	**Projects**
Various	ITS.1	Add Camera Coverage to decrease TMC blind spots
Various	ITS.2	Complete Ramp Metering
Various	ITS.4	Dual Lane Ramp Metering
Various	ITS.5	Increased Incident Response
Various	ITS.6	Traffic adaptive control on arterials
Various	ITS.7	TIS before all major decision points
Various	ITS.8	WSDOT support of in-vehicle traffic information
Various	ITS.9	Arterial camera coverage

23. I-405 CORRIDOR FREIGHT ENHANCEMENTS

Overview

This major element focuses on improvements specific to freight movements. Note that freight will benefit as well from general purpose traffic expansion described in other elements.

I-405 Corridor Freight Enhancements		
Jurisdiction	**Project ID**	**Projects**
Renton	R.FR-10	Modify SR 167 Interchange for East to South Freight movements
Various	R.FR-11	Improve truck flow with ITS
Various	R.FR-23	Remote area for overnight freight parking and staging for early morning deliveries
Various	R.FR-26	Full depth shoulders for truck usage on key freeways and arterials)
Various	R.FR-27	Traveler Information System (TIS) on SR 167 for I-405 “options”
Various	R.FR-28	TIS on I-5 for SR 18/I-90; and 164th to I-405; and South 200th to I-405
Various	R.FR-29	Centralized fax/radio for real time congestion reporting for dispatchers and truck drivers. Leverage WSDOT video linkages (e.g., a “T-911” number).
Various	R.FR-30	Hours of operation and service periods optimized—“JIT” redefined for applicable service sectors (e.g. restaurants)
Various	R.FR-32	Light cargo delivery using Sound Transit service

APPENDIX B
Alternatives Project Matrix

APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction	*ACTIONS*		5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
10.	**Basic I-405 Improvement Projects**								
	Renton	R.BI-1 & R.FR-10	SR 167 Interchange - Direct Connection with auxiliary lane SB SR 169 to SR 167			✓	✓	✓	✓
	Kirkland	R.BI-2	Continue NB climbing Lane from NE 70th to NE 85th and continue as auxiliary Lane to NE 116th			✓	✓		✓
	Kirkland	R.BI-3	SB auxiliary Lane NE 124th to NE 85th			✓	✓		✓
	Bellevue	R.BI-4	I-90 / Coal Creek Interchange			✓	✓	✓	✓
	Both,King Co,Kirk	R.BI-5	SB SR 522 to 124th continue climbing lane as an auxiliary lane			✓	✓		✓
	Bothell	R.BI-6	NB auxiliary lane SR 522 to SR 527			✓	✓		✓
	Renton	R.BI-7	Kennydale Hill climbing lane - SR 900 to 44th - NB 900 to 30th, SB 44th - 30th			✓	✓		✓
	Bellevue	R.BI-8	I-90 to Bellevue SB HOV direct connection to I-90 west			✓	✓		✓
	Bellevue	R.BI-9	NB auxiliary lane I-90 to NE 8th			✓	✓		✓
	Bellevue	R.BI-10	Increase SR 405 to Eastbound SR 520 Ramp capacity			✓	✓		✓
	Renton	R.BI-14	NB Auxilliary Lane I-5 to SR 167			✓	✓		✓
	Various	R.FR.24	Improve interchange geometrics at all major truck routes (WB-20 Design Criteria)			✓	✓	✓	✓
10.	**Committed Freeway Projects**								
	Joint	R-17 & R-17(17)	I-90/SR 900 Interchange and SR 900 improvements/Interchange reconfiguration Outside of Study Area						
	Joint	R-19	I-90/Sunset Way Interchange/Complete interchange and upgrade nonmotorized connections. Outside of Study Area						
	WSDOT	R-55	I-405/SR 167 Interchange/Construct new southbound I-405-to-southbound SR 167 ramp modification.		✓	✓	✓	✓	✓
	SR 405 Through Capacity (TC)								
11.	**Two additional GP lanes in each direction**								
	Tukwila,Renton	R.TC-1	Two additional GP lanes in each direction - SR 5 Tukwila to SR 167					✓	
	Renton	R.TC-2	Two additional GP lanes in each direction - SR 167 to SR 900/North Renton I/C					✓	
	Renton, Nwcas,Bel	R.TC-3	Two additional GP lanes in each direction - SR 900/North Renton I/C to SR 90					✓	
	Bellevue	R.TC-4	Two additional GP lanes in each direction - SR 90 To SR 520					✓	
	Bellevue,Kirkland	R.TC-5	Two additional GP lanes in each direction - SR 520 to NE 70th					✓	
	Kirkland	R.TC-6	Two additional GP lanes in each direction - NE 70th to NE 124th					✓	
	Kirk,K C,Both	R.TC-7	Two additional GP lanes in each direction - NE 124th SR 522					✓	
	Bothell,Sno Co	R.TC-8	Two additional GP lanes in each direction - SR 522 to SR 527					✓	
	Sno Co	R.TC-9	Two additional GP lanes in each direction - SR 527 to SR 5 Swamp Creek					✓	
13.	**Express Lanes- 2 lanes each direction between major interchanges**								
	Tukwila,Renton	R.TC-20 + R.TC-29a	Add Express lanes - SR 5 Tukwila to SR 167						✓
	Renton	R.TC-21	Add Express lanes - SR 167 to SR 900 North Renton						✓
	Ren, Nwcas,Bel	R.TC-22 + R.TC-33	Add Express lanes -SR 900 North Renton I/C to SR 90						✓
	Bellevue	R.TC-23	Add Express lanes - SR 90 to SR 520						✓
	Bellevue,Kirkland	R.TC-24 + R.TC-32	Add Express lanes - SR 520 to NE 70th						✓
	Kirkland	R.TC-25	Add Express lanes - NE 70th to NE 124th						✓
	Kirk,K C,Both	R.TC-26 + R.TC-31	Add Express lanes - NE 124th to SR 522						✓
	Bothell,Sno Co	R.TC-27	Add Express lanes - SR 522 to SR 527						✓
	Sno. Co	R.TC-29 + R.TC-30	Add Express Lanes - SR 527 to SR 5 Swamp Creek						✓
	Renton	R.TC-28	Add Express lanes- on SR 167 north of 180th up to I-405						✓

∗ Evaluated within another project

APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction	*ACTIONS*		5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
13.	**Express Lanes - Access Locations**								
	Tuk & Renton		R.TC-29a & R.TC-20	Southern end to Express lanes - Between SR 181 and SR 167					✓ ✻
	Snohomish Co		R.TC-30 & R.TC-29	Northern end to Express lanes - Between SR 527 and I-5					✓ ✻
	King Co,Kirkland		R.TC-31 & R.TC-26	Slip Ramp- South of NE 160th St					✓ ✻
	Kirkland		R.TC-32 & R-TC-24	Slip Ramp- South of NE 70th St					✓ ✻
	Bellevue, Newcastle		R.TC-33 & R.TC-22	Slip Ramp- South of Coal Creek Pkwy					✓ ✻
	Renton		R.TC-34	Interchange access location- SR 167					✓
14.	**Widen SR 167 by 1 lane each direction to study Area boundary**								
	Renton, Kent		R.CF-8	SR 167 I-405 to Study Area Boundary			✓	✓	✓
14A.	**SR 167 / I-405 Interchange Improvements**								
	Renton		R.FR-10 & R.BI-1	SR 167/I-405 Interchange Add Directional Ramps for major movements			✓ ✻	✓ ✻	✓ ✻
16.	**Connecting Freeway Capacity (Matched to fit I-405 Improvements)**								
	Tuikwila		R.CF-1	SR 518 I-405 to SR 99/Airport Access			✓	✓	✓
	Bellevue		R.CF-3	I-90 South Bellevue to Eastgate				✓	✓
	Bellevue		R.CF-4	SR 520 Bellevue Way to 148th					✓
	Bothell, Woodin		R.CF-5	SR 522 Bothell to NE 195th			✓	✓	✓
	Sno Co, Lynnwood		R.CF-6	SR 525 I-405 to SR 99			✓	✓	✓
	Tukwila		R.CF-9	I-5 at Tukwila			✓	✓	✓
	Lynnwood		R.CF-10	I-5 at Swamp Creek - 44th to 155th			✓	✓	✓
10A.	**One additional GP or Auxiliary lane in each direction**								
	Tukwila,Renton		R.TC-9	One additional GP lanes in each direction - SR 5 Tukwila to SR 167			✓		✓
	Renton		R.TC-10	One additional GP lanes in each direction - SR 167 to SR 900/North Renton I/C			✓		✓
	Ren, Nwcas,Bel		R.TC-11	One additional GP lanes in each direction - SR 900/North Renton I/C to SR 90			✓		✓
	Bellevue		R.TC-12	One additional GP lanes in each direction - SR 90 To SR 520			✓		✓
	Bellevue,Kirkland		R.TC-13	One additional GP lanes in each direction - SR 520 to NE 70th (Varify need for additional through capacity on this section)			✓		✓
	Kirkland		R.TC-14	One additional GP lanes in each direction - NE 70th to NE 124th			✓		✓
	Kirk,K C,Both		R.TC-15	One additional GP lanes in each direction - NE 124th SR 522			✓		✓
	Bothell,Sno Co		R.TC-16	One additional GP lanes in each direction - SR 522 to SR 527			✓		✓
	Sno. Co		R.TC-17	One additional GP lanes in each direction - SR 527 to SR 5 Swamp Creek			✓		✓
18.	**Arterial Capacity (AC) Actions**								
	King Co		R.AC-2 & R-39	138th Ave - Petrovitsky Rd to SR 169- Add 1 lane. See R-39					
	King Co, Renton		R.AC-3	138th Ave SE - Construct roadway link to 4/5 lanes- SR 169 to NE 4th St				✓	✓
	Ren, Nwcas,Bel		R.AC-4	140th Ave/Coal Creek Pkwy- Widen to 6 lanes to I-405					
	Redmond		R.AC-15 & R-111	Willows Rd- NE 90th St to NE 124th St- Add 1 lane each direction					✓ ✻
	King Co,Woodin		R.AC-16	Willows Rd- NE 124th St to NE 145th St- construct new facility -4/5 lanes				✓	✓
	Woodinville		R.AC-17 & R.PA-28	SR 202- NE 145th St to SR 522- widen to 5 lanes				✓ ✻	✓ ✻
	Red,K C,Woodin		R.AC-18 & R.PA-28	SR 202 - NE 90th to NE 145th					✓ ✻
	Ren, K C, Issaqu		R.AC-19 & R.IC-5	SR 900 - SR 405 to Edmonds. Additional capacity is not needed					
	Both,S C,Mill Cr		R.AC-20	SR 527/Bothell Everett Hwy - SR 522 to SR 524 - Widen by 1 lane each direction					✓
	Both,Woodin		R.AC-30 & R.PA-25	SR 202 connection across SR 522 to 120th				✓ ✻	✓ ✻
	Bothell		R.AC-34	120th Ave NE - SR 522 to NE 195th (4 lns existing additioal not needed)					

✻ ***Evaluated within another project***

APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction		*ACTIONS*	5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
		Tukwila	R.AC-35	SR 181- S 180th to S 200th					✓
		Tukwila	R.AC-36& R.IC-3	SR 181- 144th to Strander Blvd.					✓ ∗
		Tukwila	R.AC-37	Southcenter Pky - Tukwila Pky to Strander Blvd					✓
19.	**Arterial Interchange Improvements (Matched to fit I-405 Improvements)**								
		Tukwila	R.IC-3 & R.AC-36	SR 181 West Valley Highway/ Interurban See R.AC-36			✓	✓	✓
		Renton	R.IC-4 & R.HOV-43	SR 169 Maple Valley Hwy SR 900 to NE 5th See R.HOV-43			✓ ∗	✓ ∗	✓
		Renton	R.IC-5 & R.AC-19	SR 900/ Park - Lake Washington Blvd to Edmonds. Additional capacity is not needed.					
		Bellevue	R.IC-6	Coal Creek Pkwy I-405 to Factoria Blvd.	✓	✓	✓	✓	✓
		Kirkland, Redmond	R.IC-8	NE 85th St-Kirkland Way to 124th			✓	✓	✓
		Kirkland	R.IC-9	NE 116th- 114th Ave NE to 124th Ave NE			✓	✓	✓
		Kirkland	R.IC-10	NE 124th- 113th Ave NE to 124th Ave NE			✓	✓	✓
		Bothell	R.IC-11 & R.HOV-41	SR 527-228th to SR 524			✓	✓	✓
		Renton	R.IC-12 & R.HOV-33	Port Quendall overpass at SE 44th. See R.HOV-33					
		Kirk,King Co	R.IC-14	New half diamond interchange to/from north at NE 132nd St				✓	✓
		Bothell	R.IC-21	New SR 405 Interchange at 240th Street SE(Bothell)				✓	✓
		Bothell	R.IC-24 & R-40	NE 160th Street-112th Ave to Juanita/Woodinville Wy See R-40			✓ ∗	✓ ∗	✓ ∗
		Bothell	R.!C-25	NE 195th Street-Ross Rd to North Creek Pkwy (additional capacity not needed)					
		Kirkland	R.IC-26 & R.PA-13	NE 132nd - 113th to 124th Ave NE				✓ ∗	✓ ∗
12.	**Collector Distributors (CD) Matched to fit I-405 Improvements**								
		Renton	R.CD-1	SR-167, SR-169, Sunset and SR 900/North Renton;					
		Bellevue	R.CD-2	Coal Creek, SR 90, SE 8th, NE 4th, NE 8th and SR 520;					
		Kirkland	R.CD-3	NE 70th and NE 85th;					
		Kirkland	R.CD-4	NE 116th and NE 132nd;					
		Bothell, King Co	R.CD-5	NE 160th, SR-522 and SR 527					
	HOV (HOV)								
7.	**Committed HOV Projects**								
		Bellevue	HOV-01	I-405 at NE 4th/6th/8th (Bellevue) / Construct new HOV direct access at NE 6th, Improve arterial capacity at NE 4th/8th interchanges	✓	✓	✓	✓	✓
		Bellevue	HOV-02	I-90 (Eastgate) / New I-90 HOV direct access connection to P&R	✓	✓	✓	✓	✓
		WSDOT	HOV-14	I-405 (I-5 Swamp Creek to SR 527)/Construct NB and SB HOV lanes total 6 lanes	✓	✓	✓	✓	✓
		KCDOT	HOV-15	E Lk Samm Pkwy (Iss-Fall City Rd to I-90 on ramp)/Widen to 4/5 lanes + HOV lanes. Outside of Study Area					
		ST	HOV-101	I-405 @ Lind/HOV direct access improvements.				✓	
		ST	HOV-102, R.HOV-58 & R.PA-1	Woodinville Arterial Enhancements/HOV arterial enhancements	✓	✓	✓	✓	✓
		Renton	R.HOV-32	Between Sunset and SR-900 /Park Ave interchange in Renton	✓	✓	✓	✓	✓
		Renton	R.HOV-33 & R.IC-12	NE 44th I/C - HOV Direct Access and Arterial Improvements(Assumes Port Quendall)	✓	✓	✓	✓	✓
		Kirkland	R.HOV-61	NE 85th				✓	
		Bothell	R.HOV-62	SR 522 Campus Access	✓	✓	✓	✓	✓
		Bothell	R.HOV-63	SR 527	✓	✓	✓	✓	✓
		Tukwila	R.HOV-64	Southcenter (In-Line Station). In line station at this location has been dropped.					
		ST	R.HOV-66	I-405 at NE 128th St/HOV Direct Access Improvements	✓	✓	✓	✓	✓

∗ ***Evaluated within another project***

APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction		*ACTIONS*	5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
7.	**HOV Interchange Ramps (Direct Access)**								
	Tukwila		R.HOV-25	SR 5 I/C @ Tukwila Fwy to Fwy HOV ramps,			✓	✓	✓
	Renton		R.HOV-26	SR 167 I/C Fwy to Fwy HOV ramps,			✓	✓	✓
	Bellevue		R.HOV-27	SR 90 I/C Fwy to Fwy HOV ramps,			✓	✓	✓
	Bellevue		R.HOV-28	SR 520 Fwy to Fwy HOV ramps,			✓	✓	✓
	Bothell		R.HOV-29	SR 522 Fwy to Fwy HOV Ramps			✓	✓	✓
	Sno. Co.		R.HOV-30	SR 5 I/C @ Swamp Creek Fwy HOV ramps.			✓	✓	✓
	Newcastle		R.HOV-65	112th St SE (In-Line Station)			✓		
6.	**Arterial HOV**								
	Bellevue		R.HOV-36	Coal Creek Pkwy from I-405 to Forest Drive		✓	✓	✓	
	Bellevue		R.HOV-37	NE 8th Street from I-405 to 120th Ave NE		✓	✓	✓	
	Kirk, Redmond		R.HOV-38	NE 85th St from Kirkland Way to 148th Ave NE Vicinity		✓	✓	✓	
	Kirkland		R.HOV-39	NE 116th from 115th Ave NE to 124th Ave NE		✓	✓	✓	
	Kirkland		R.HOV-40	NE 124th from 113th Ave NE to 132 Ave NE		✓	✓	✓	
	Bothell		R.HOV-41 & R.IC-11	SR 527 From SE 228th St to SR 524		✓	✓ ⁎	✓ ⁎	
	Renton		R.HOV-43 & R.IC-4	SR 169 from SR 405 to Riverview Park Vicinity - HOV/Transit Preferential treatment.		✓	✓	✓	
	Renton		R.HOV-44	SW 27th St Corridor in Renton from Oaksdale Ave to SR 167		✓	✓	✓	
	Redmond		R.HOV-47	Avondale Rd from Novelty Hill Rd to Avondale Way/ Construct SB HOV lane		✓	✓	✓	
	Renton, King Co		R.HOV-48	SW 43 St from SR 167 to 140 Ave SE		✓	✓	✓	
	Renton		R.HOV-49	Logan Ave N/N 6 St from S 3 St to Park Dr, Transit Signal Priority		✓	✓	✓	
	Renton		R.HOV-51	Park Dr/Sunset Blvd from Garden Ave to Duvall Ave NE, Que Bypass'		✓	✓	✓	
	Kenmore		R.HOV-53 & R.PA-11	68 Ave NE (Simonds Rd to SR 522) - Construct NB HOV lane		✓	✓	✓	
	Redmond		R.HOV-55	Willows Rd (Redmond Wy to NE 124 St)		✓	✓	✓	
	Kirkland, Bellevue		R.HOV-56	Lake Washington Blvd (SR 520 to Yarrow Bay) - HOV lanes		✓	✓	✓	
	Kirkland		R.HOV-57	NE 68 St/NE 72 Pl (I-405 Vicinity) Que Bypass'		✓	✓	✓	
	Bothell, Woodin Renton, King Co		R.HOV-58, HOV-102 & R.PA-1 R.HOV-59	SR 522 (I-405 to SR 527 - Bothell) WB HOV Que Bypass - See HOV-102 Benson Rd - I-405 to SE Carr Rd - No Project					
	Bellevue		R.HOV-60	Bellevue Way - I-90 to South Bellevue Park and Ride Vicinity		✓	✓	✓	
23.	**Freight (F)**								
	Renton		R.FR-10 & R.BI-1	Modify SR 167 Interchange for East to South Freight movements		✓ ⁎	✓ ⁎	✓ ⁎	
	Various		R.FR-11	Improve truck flow with ITS		✓	✓	✓	
	Various		R.FR-23	Remote area for overnight freight parking and staging for early morning deliveries		✓	✓	✓	
	Various		R.FR-26	Full depth shoulders for truck usage on key freeways and arterials)		✓	✓	✓	
	Various		R.FR-27	Traveler Information System (TIS) on SR 167 for I-405 "options"		✓	✓	✓	
	Various		R.FR-28	TIS on I-5 for SR 18/I-90; and 164th to I-405; and South 200th to I-405		✓	✓	✓	
	Various		R.FR-29	Centralized fax/radio for real time congestion reporting for dispatchers and truck drivers. Leverage WSDOT video linkages (e.g., a "T-911" number).		✓	✓	✓	
	Various		R.FR-30	Hours of operation and service periods optimized—"JIT" redefined for applicable service sectors (e.g. restaurants)		✓	✓	✓	
	Various		R.FR-32	Light cargo delivery using Sound Transit service		✓	✓	✓	
22.	**Intelligent Transportation Systems (ITS)**								
	Various		ITS-1	Add Camera Coverage to decrease TMC blind spots		✓	✓	✓	✓
	Various		ITS-2	Complete Ramp Metering		✓	✓	✓	✓
	Various		ITS-4	Dual Lane Ramp Metering		✓	✓	✓	✓

⁎ ***Evaluated within another project***

APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

						Alternatives				
		Jurisdiction		*ACTIONS*		5	1	2	3	4
Element #						**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
		Various		ITS-5	Increased Incident Response		✓	✓	✓	✓
		Various		ITS-6	Traffic adaptive control on arterials		✓	✓	✓	✓
		Various		ITS-7	TIS before all major decision points		✓	✓	✓	✓
		Various		ITS-8	WSDOT support of in-vehicle traffic information		✓	✓	✓	✓
		Various		ITS-9	Arterial camera coverage		✓	✓	✓	✓
4.	**High Capacity Transit (Physically Separated, Fixed Guideway HCT)**									
		Tuk. & Renton		T.HCT-1	HCT- SeaTac to Renton CBD		✓	✓		
		Renton		T.HCT-2	HCT-Renton CBD to NE 44th (Port Quendall)		✓	✓		
		Ren< New & Bel		T.HCT-3	HCT- NE 44th (Port Quendall) to Factoria		✓	✓		
		Bell & Issa		T.HCT-4	HCT - Factoria To Issaquah		✓	✓		
		Bellevue		T.HCT-5	HCT Factoria to Downtown Bellevue		✓	✓		
		Bell & Red		T.HCT-6	HCT - Bellevue to Redmond		✓	✓		
		Bell & Kirk		T.HCT-7	HCT- Bellevue to Totem Lake		✓	✓		
		Kirk & King Co		T.HCT-8	HCT - Totem Lake to Bothell		✓	✓		
		Various		T.HCT-9	HCT - Bothell to Lynnwood		✓	✓		
4.	**High Capacity Transit (Bus rapid transit [BRT] operating improved access HOV lanes on the existing freeway system)**									
		Tuk. & Renton		T.HCT-1	HCT- SeaTac to Renton CBD				✓	
		Renton		T.HCT-2	HCT-Renton CBD to NE 44th (Port Quendall)				✓	
		Ren< New & Bel		T.HCT-3	HCT- NE 44th (Port Quendall) to Factoria				✓	
		Bell & Issa		T.HCT-4	HCT - Factoria To Issaquah				✓	
		Bellevue		T.HCT-5	HCT Factoria to Downtown Bellevue				✓	
		Bell & Red		T.HCT-6	HCT - Bellevue to Redmond				✓	
		Bell & Kirk		T.HCT-7	HCT- Bellevue to Totem Lake				✓	
		Kirk & King Co		T.HCT-8	HCT - Totem Lake to Bothell				✓	
		Various		T.HCT-9	HCT - Bothell to Lynnwood				✓	
4.	**High Capacity Transit Stations**									
		Sea-Tac		HCT.TS-1	Sea-Tac (Outside of Study Area)					
		Tukwila		HCT.TS-2	Southcenter		✓	✓	✓	
		Tukwila & Renton		HCT.TS-3	Tukwila (Longacres)		✓	✓		
		Renton		HCT.TS-4	Downtown Renton		✓	✓	✓	
		Renton		HCT.TS-5	North Renton		✓	✓		
		Renton		HCT.TS-6	Port Quendall		✓	✓	✓	
		Bellevue		HCT.TS-7	Factoria		✓	✓	✓	
		Bellevue		HCT.TS-8	Bellevue Transit Center		✓	✓	✓	
		Bellevue		HCT.TS-9	Bellevue Library		✓	✓		
		Bell & Kirk		HCT.TS-10	SR 520/Northup Way		✓	✓	✓	
		Kirkland		HCT.TS-11	Downtown Kirkland (NE 85th Street)		✓	✓	✓	
		Kirkland		HCT.TS-12	Totem Lake		✓	✓	✓	
		Woodinville		HCT.TS-13	NE 145th Street		✓	✓		
		Woodinville		HCT.TS-14	Woodinville		✓	✓		
		Bothell		HCT.TS-15	NE 195th		✓	✓	✓	

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APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction	*ACTIONS*		5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
		Bothell	HCT.TS-16	Canyon Park		✓	✓	✓	
		Sno County	HCT.TS-17	164th Street AW (AshWay)		✓	✓		
		Bellevue	HCT.TS-18	Eastgate		✓	✓	✓	
		King County	HCT.TS-19	Lakemont		✓	✓		
		Issaquah	HCT.TS-20	Issaquah 9Outside of Study area)					
		Bellevue	HCT.TS-21	132nd Avenue NE		✓	✓		
		Bellevue	HCT.TS-22	148th Avenue NE		✓	✓		
		Redmond	HCT.TS-23	Overlake (NE 40th Street)		✓	✓	✓	
		Redmond	HCT.TS-24	Redmond Town Center		✓	✓	✓	
		Redmond	HCT.TS-25	Bear Creek		✓	✓		
		Mercer Island	HCT.TS-26	Mercer Island		✓	✓	✓	
New	**Transit Service (TS)**								
		Various	TS-0	Twenty percent more service than in the proposed 6-year plans for sound Transit, METRO and Community Transit	✓	✓	✓	✓	✓
		Various	TS-1	Fifty percent more service assumed in the current 6-year plans for Sound Transit, METRO and Community Transit					✓
3.	**Transit Service (TS)**								
		Various	TS-2	Twice the service in the proposed 6-year plans for Sound Transit, METRO and Community Transit		✓	✓	✓	
8.	**Park and Rides (PR)**								
		Renton	T.PR-3	Renton Highlands	✓	✓	✓	✓	✓
		Tukwila & Ren	T.PR-6	Tukwila Commuter Rail (Longacres)	✓	✓	✓	✓	✓
		K C	T.PR-8	SR 169 and 140th Place SE		✓	✓	✓	
		K C	T.PR-9	Petrovitsky Rd and 157th Ave SE		✓	✓	✓	
		K C	T.PR-10	140th Ave SE and SE 192nd		✓	✓	✓	
		K C	T.PR-11	SR 515 and SE 208th		✓	✓	✓	
		Kent & Renton	T.PR-12	SR 167 and SW 43rd		✓	✓	✓	
		Kent & Renton	T.PR-13	SR 167 and 84th Ave		✓	✓	✓	
		Redmond	T.PR-17	Willows Rd @ NE 100th		✓	✓	✓	
		Redmond	T.PR-18	SR 202 @ NE 100th		✓	✓	✓	
		Bell & Kirk	T.PR-20	South Kirkland	✓	✓	✓	✓	✓
		Redmond	T.PR-21	Overlake	✓	✓	✓	✓	✓
		Bellevue	T.PR-22	South Bellevue	✓	✓	✓	✓	✓
		Bellevue	T.PR-23	Newport (112th Ave. SE)	✓	✓	✓	✓	✓
		KC	T.PR-24	NE 160th/Brickyard Rd	✓	✓	✓	✓	✓
		Bothell	T.PR-25	Canyon Park (SR 405 and SR 527)	✓	✓	✓	✓	✓
		KC	T.PR-26	SR 202 @ NE 145th		✓	✓	✓	
		Tukwila	T.PR-30	Tukwila	✓	✓	✓	✓	✓
		Kirkland	T.PR-31	Houghton	✓	✓	✓	✓	✓
		Kirkland	T.PR-32	Kingsgate	✓	✓	✓	✓	✓
		Medina	T.PR-33	Evergreen Point	✓	✓	✓	✓	✓
		Bellevue	T.PR-34	Wilburton	✓	✓	✓	✓	✓
		King County	T.PR-35	Lakemont	✓	✓	✓	✓	✓
		Redmond	T.PR-36	Rendmond	✓	✓	✓	✓	✓
		Redmond	T.PR-37	Bear Creek	✓	✓	✓	✓	✓
		Bothell	T.PR-38	Bothell	✓	✓	✓	✓	✓

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APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
	Jurisdiction		*ACTIONS*		5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
	Kenmore		T.PR-39	Northshore	✓	✓	✓	✓	✓
	Kenmore		T.PR-40	Kenmore	✓	✓	✓	✓	✓
	Woodinville		T.PR-41	Woodinville	✓	✓	✓	✓	✓
	Mercer Island		T.PR-42	Mercer Island	✓	✓	✓	✓	✓
	Bellevue		T.PR-43	Eastgate	✓	✓	✓	✓	✓
9.	**Transit Centers (TC)**								
	Renton		T.TC-6	Downtown Renton	✓	✓	✓	✓	✓
	Bellevue		T.TC-8	Downtown Bellevue	✓	✓	✓	✓	✓
	Redmond		T.TC-9	Overlake	✓	✓	✓	✓	✓
	Kirkland		T.TC-12	Downtown Kirkland	✓	✓	✓	✓	✓
	Kirkland		T.TC-14	Totem Lake	✓	✓	✓	✓	✓
1.	**TDM (TDM)**								
	Various		TDM-1	TDM Package		✓	✓	✓	✓
			TDM-2	Expanded TDM Package- Regional Congestion Pricing		✓			
	Pedestrian and Bicycle Facilities (P&B)								
21.	**I-405 Crossings**								
	Bellevue		NM. CR-1	Lk Washington Blvd/112th Ave. SE - crossing I-405 from 106th Ave. SE to 112th Place SE - Add sidewalks		✓	✓	✓	✓
	Bothell		NM. CR-2	Fitzgerald Rd/27th Ave. - crossing I-405 from 228th St. SE to 240th St. SE - Add ped/bike facility		✓	✓	✓	✓
	King County		NM. CR-3	SR-524 (Filbert Road) - crossing I-405 from North Rd to Locust Way - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Sno. County		NM. CR-4	Damson Road - crossing I-405 from 192nd St SW to Logan Rd - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Renton		NM. CR-5	NE Park Drive - crossing I-405 from SR-900/Sunset Blvd to Lake Wash Blvd - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Renton		NM. CR-6	Jackson SW/Longacres Dr SW - crossing I-405 from S. Longacres Way to Monster Rd SW - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Bothell		NM. CR-7	Connection between Sammamish River Trail and North Creek Trail - between SR-522 and NE 195th St. - Add ped/bike overcrossing of I-405		✓	✓	✓	✓
	Bothell		NM. CR-8	SR-527 - crossing I-405 from 220th St SE to 228th St SE - ped/bike facility		✓	✓	✓	✓
21.	**Pedestrian/Bicycle Connections**								
	Bellevue,Kirkland		NM.P&B-2	BNSF Right of Way - SE 8th to Totem Lake - Add ped/bike facility.		✓	✓	✓	
	Bellevue		NM.P&B-4	Lk Washington Blvd - SR 405 to SE 60th - Add ped/bike facilities		✓	✓	✓	
	Bothell		NM.P&B-5	North Creek Trail Link - 240th to 232nd - Add ped/bike trail.		✓	✓	✓	
	Bel,Nwcas,Ren		NM.P&B-6	Lk Washington Blvd/112th - SE 60th to May Creek I/C - Add ped/bike facility		✓	✓	✓	
	Renton		NM.P&B-14	Cedar River Trail S. Extension - I-405 to Burnett Ave - Add ped/bike facilities		✓	✓	✓	
	Renton		NM.P&B-15	Cedar River Trail/Lake Washington Blvd Connector - Cedar River Trail to Lk Wash Blvd Loop - Add ped/bike facilities		✓	✓	✓	
	Renton		NM.P&B-16	Cedar-Duwamish Trail Connection - I-405 to Interurban Ave. S. - Add ped/bike facilities		✓	✓	✓	
	Renton		NM.P&B-17	I-405/SR-167 trail connection - Lind Ave. SE to Talbot Rd S. - Add trail connection		✓	✓	✓	
	Renton/Tukwila		NM.P&B-18	I-405/1-5 - via or around I-405/I-5 interchange - Add ped/bike facilities		✓	✓	✓	✓
	Tukwila		NM.P&B-19	SR-181/W. Valley Hwy - crossing I-405 from Strander Blvd to Fort Dent Way - Add bike lanes		✓	✓	✓	✓
17.	**Arterial Committed Projects**			(Note: ID numbers are same as ETP ID's					
	Bothell, Snohomish C		R.AC-21	120th NE/39th SE - NE 95th to Maltby Rd - 4/5 lanes including new connection	✓	✓	✓	✓	✓
	Bellevue		R-08	NE 29th Pl (148th Ave NE to NE 24th St)/Construct new 2-lane road	✓	✓	✓	✓	✓

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APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

				Alternatives				
	Jurisdiction	*ACTIONS*		5	1	2	3	4
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Snohomish Co.	R-10	SR 524 (24 St SW to SR 527)--- Widen to 4/5 lanes including sidewalks, bike lanes	✓	✓	✓	✓	✓
	Bothell	R-13	Beardslee Blvd (Main St to I-405)Widen to 3 lanes+CGS (Project does not add capacity)					
	Joint	R-17 & R-17(10)	I-90/SR 900 Interchange and SR 900 improvements--- Interchange reconfiguration. Project is outside of the Study Area					
	Issaquah	R-18	Issaquah bypass (Issaquah-Hobart Rd to I-90)-- Construct new 4/5 lanes with separated ped/bike trail. Project is outside of the Study Area.					
	Kirkland	R-21	NE 120 St (Slater Ave to 124 Ave NE)--- Construct new 3-lane roadway with ped/bike facilities	✓				
	Redmond/ WSDOT	R-25	SR 202 Corridor Improvements(East Lake Sammamish Pkwy to Sahalee Way)--- Widen to 3/5 lanes; intersection improvements with bike/ped facilities	✓	✓	✓	✓	✓
	Redmond	R-26	NE 90 St (Willows Rd to SR 202)--- Construct new 4/5 lanes + bike facilities	✓	✓	✓	✓	✓
	Redmond	R-28	West Lake Sammamish Parkway (Leary Way to Bel-Red Rd)--- Widen to 4/5 lanes + CGS, bike lanes	✓	✓	✓	✓	✓
	Renton	R-36	Oakesdale Ave SW (SW 31st to SW 16th)--- Construct new 5 lane roadway with CGS	✓	✓	✓	✓	✓
	WSDOT	R-38	SR 522 (SR 9 to SR 2)--- Widen to 4 lanes					
	KCDOT	R-39 & R.AC-2	140 Ave SE (SR 169 to SE 208 St)--- Widen to 5 lanes SR 169 to SE 196 St, widen for turn channels on SE 196. Combines 2 King County CIP projects. A major North-South arterial which serves the Soos Creek Plateau and Fairwood.	✓	✓	✓	✓	✓
	KCDOT	R-40 & R.IC-24	Juanita-Woodinville Way (NE 145 St to 112th Ave NE) Widen to 5 lanes + CGS, walkway/pathway	✓	✓	✓	✓	✓
	KCDOT	R-41	East Lake Sammamish Pkwy (Issaquah-Fall City Rd to SE 56 St)--- Widen 4/5 lanes including bike facilities. Construct CGS; interconnect traffic signals. Project is outside of the Study Area.					
	Issaquah	R-42	Sammamish Plateau Access Road (I-90 to Iss.-Pine Lake Rd)-- Prepare EIS, construct new 5-lane arterial w/ CGS, bike lanes. Project is outside of the Study Area.					
	Sammamish	R-44	228 Ave SE (SE 24th to NE 8 St)--- Widen to 4/5 lanes + CGS, bike lanes. Planned in 2 phases. Project is outside of the Study Area.					
	KCDOT	R-45	Issaquah-Fall City Rd (Issaquah-Pine Lake Rd to Klahanie Dr) - Phase II & III--- Widen to 4/5 lanes + CGS, bike lanes. Project is outside of the Study Area.					
	KCDOT	R-47	NE 124 St (Willows Rd to SR 202)--- Widen to 4/5 lanes + CGS, bike facilities; traffic signal.	✓	✓	✓	✓	✓
	KCDOT	R-48	Avondale Rd (Tolt Pipeline to Woodinville-Duvall Rd)--- Widen to 3 lanes + walkway/pathway (Project does not add capacity)					
	Woodinville	R-51	Woodinville-Snohomish Rd/140 Ave NE (NE 175 St to SR 522)--- Widen to 4/5 lanes + CGS, bike lanes	✓	✓	✓	✓	✓
	KCDOT	R-52	Woodinville-Duvall Rd (NE 171st St to Avondale Rd)--- Widen to 5 lanes + shoulders (without widening towards Woodinville the added capacity can't be used)					
	Bellevue	R-101	150th Ave SE---Widen to 7 lanes from SE 36th to SE 38th; add turn lanes	✓	✓	✓	✓	✓
	Redmond	R-111 & R.AC-15	Willows Rd Corridor Improvements-- Channelization of Willows Rd/Redmond Way intersection and widening of Willows Rd from NE 116th to NE 124th	✓	✓	✓	✓	✓
	Snohomish Co.	R-117	39th Ave SE Realignment at SR 524 and York Rd--- Construct 4-way intersection to replace 2 offset intersections	✓	✓	✓	✓	✓
17.	**Planned Arterial Projects**							
	Sound Transit	R.PA-1, HOV-102 & R.HOV-58	SR 522 (Woodinville to Bothell)--- HOV enhancements (ETP 246) See HOV-102					
	Bellevue	R.PA-2	148 Ave SE (SE 24 St to SE 28 St) New SB lane from SE 24 St to the WB I-90 on-ramp (ETP 203)			✓	✓	✓
	Bothell	R.PA-3	SR 522 Multimodal Corridor Project--- Widen SR-522 mostly within existing ROW to provide transit lanes, safety improvements, consolidated driveways & left turn lanes; and sidewalks. (ETP R-107)			✓	✓	✓
	Bothell	R.PA-4	SR 524 (SR 527 to Bothell City Limit)--- Widen to 5 lanes + CGS, bike facilities (class III) (ETP R-11)			✓	✓	✓
	KCDOT	R.PA-5	SE 212 Way/SE 208 St (SR 167 to Benson Rd/SR 515)--- Widen to 6 lanes + bike facilities, Transit/HOV preferential treatment, turn channels. (ETP R-46)			✓	✓	✓
	KCDOT	R.PA-6	Petrovitsky Rd (143 Ave SE to 151 Ave SE) --- Widen to 5 lanes + CGS, bike lanes, traffic signal, interconnect (ETP 265). Project has already been constructed.					
	KCDOT	R.PA-7	Bear Creek Arterial (NE 80 St to Novelty Hill Rd)--- Corridor study and construction of new 3 lane arterial (ETP 141). Project is outside the study area					
	KCDOT	R.PA-8	NE 124/128 St (SR 202 to Avondale Rd)--- Widen to 4/5 lanes including bike & equestrian facilities (ETP 164)			✓	✓	✓
	KCDOT	R.PA-9	SE 208 St (116 Ave SE to 132 Ave SE)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signal (ETP 263). Project has already been constructed.					

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APPENDIX B

I-405 Corridor Program EIS Alternatives Project Matrix

					Alternatives				
		Jurisdiction		*ACTIONS*	5	1	2	3	4
Element #					**No Action**	**HCT/TDM**	**Mixed Mode with HCT/Transit Emphasis**	**Mixed Mode**	**General Capacity**
		KCDOT	R.PA-10	NE 132 St Extension (132 Ave NE to Willows Rd Ext.)---- Construct new 3 lane arterial with CGS, bike lanes (ETP 61)			✓	✓	✓
		Kenmore/KCDOT	R.PA-11 & R.HOV-53	68 Ave NE (Simonds Rd to SR 522)--- Construct NB HOV lane total of 5/6 lanes (ETP 22)			✓ ✻	✓ ✻	✓
		Kirkland	R.PA-12	124 Ave NE (NE 85 St to Slater Rd NE)--- Widen to 3 lanes (s. of NE 116th St, 5 lanes n. of NE 116th St with ped/bike facilities (ETP R-23)			✓	✓	✓
		Kirkland	R.PA-13 & R.IC-26	NE 132 St (100 Ave NE to 116 Way NE)--- Widen to 3 lanes + CGS, Bike lane (ETP R-124)			✓	✓	✓
		Kirkland	R.PA-14	NE 100 St (117 Ave NE to Slater Ave) --- Construct bike/pedestrian/emergency Vehicle overpass across I-405 (ETP 309)			✓	✓	✓
		Newcastle	R.PA-15	Coal Creek Pkwy (SE 72 St to Renton City Limits)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signals (ETP R-24)			✓	✓	✓
		Redmond	R.PA-16	Redmond 148th Ave NE Corridor - 3 projects--- Turn lane and channelization improvements along corridor – BROTS;			✓	✓	✓
		Redmond	R.PA-17	Bear Creek Pkwy--- Construct new 162nd Ave NE arterial and new 72nd St arterial w/ bike/ped and CSG; widen Bear Creek Pkwy (ETP R-110)			✓	✓	✓
		Redmond	R.PA-18	Union Hill Rd (Avondale Rd to 196 Ave NE)--- Widen to 4/5 lanes with bike facilities (ETP R-27)			✓	✓	✓
		Renton	R.PA-19	Duvall Ave NE (NE 4 St to NE 25 Court -City Limits)--- Widen to 5 lanes + CGS, bikeway (ETP R-31)			✓	✓	✓
		Renton	R.PA-20	Oakesdale Ave SW (Monster Rd to SR 900) Replace Monster Rd Bridge; widen to 4/5 lanes +Bike Lanes + CGS (ETP R-35)			✓	✓	✓
		Renton	R.PA-21	Rainier Ave / Grady Way (intersection)-- Grade separation			✓	✓	✓
		Renton	R.PA-22	SW Grady Way (SR 167 to SR 515)--- Rechannelize and modify signals for a continuous eastbound lane (ETP R-37)			✓	✓	✓
		Renton	R.PA-23	SR 167 at East Valley Road--- New southbound off-ramp and signalization at East Valley Road (ETP 255)			✓	✓	✓
		Renton/ KCDOT	R.PA-24	Soos Creek Regional Links--- Placeholder for Trans-Valley Study (ETP R-115)			✓	✓	✓
		Woodinville	R.PA-25 & R.AC-30	SR 522 Interchange Package(SR 522/SR 202 &SR522/195th St)--- Access improvements and new freeway ramps (ETP R-53) (See R.AC-30)			✓	✓	✓
		Woodinville	R.PA-26	SR202 Corridor Package (SR202/148th Ave & SR202/127th Place)--- Intersection improvements (ETP R-54)			✓	✓	✓
		WSDOT	R.PA-27	SR 520/SR 202 Interchange --- Complete interchange by constructing a new ramp and thru lane on 202 to SR 520 (ETP R-29)			✓	✓	✓
		WSDOT	R.PA-28 & R.AC-17	SR 202 / 140 Place NE (NE 124 St to NE 175 St)--- Widen 4/5 lanes (ETP R-43) (See R.AC-17, 18)			✓	✓	✓
		WSDOT	R.PA-29	SR 202 (Sahalee Way to Bear Creek-Sammamish Arterial)-- Widen to 4/5 lanes (ETP 152). Project is outside the Study Area.					

✻ ***Evaluated within another project***